

American Aviation

SERVING

THE

INDUSTRY

SINCE 1937



H. R. "Bill" Boyer
Again Directs
Plane Production

Extra C4
AUGUST 20



More aircraft tools,
Boyer's first aim . . . 15



Why military planes
cost more now 18



New King Beaver ready
for first flight 19



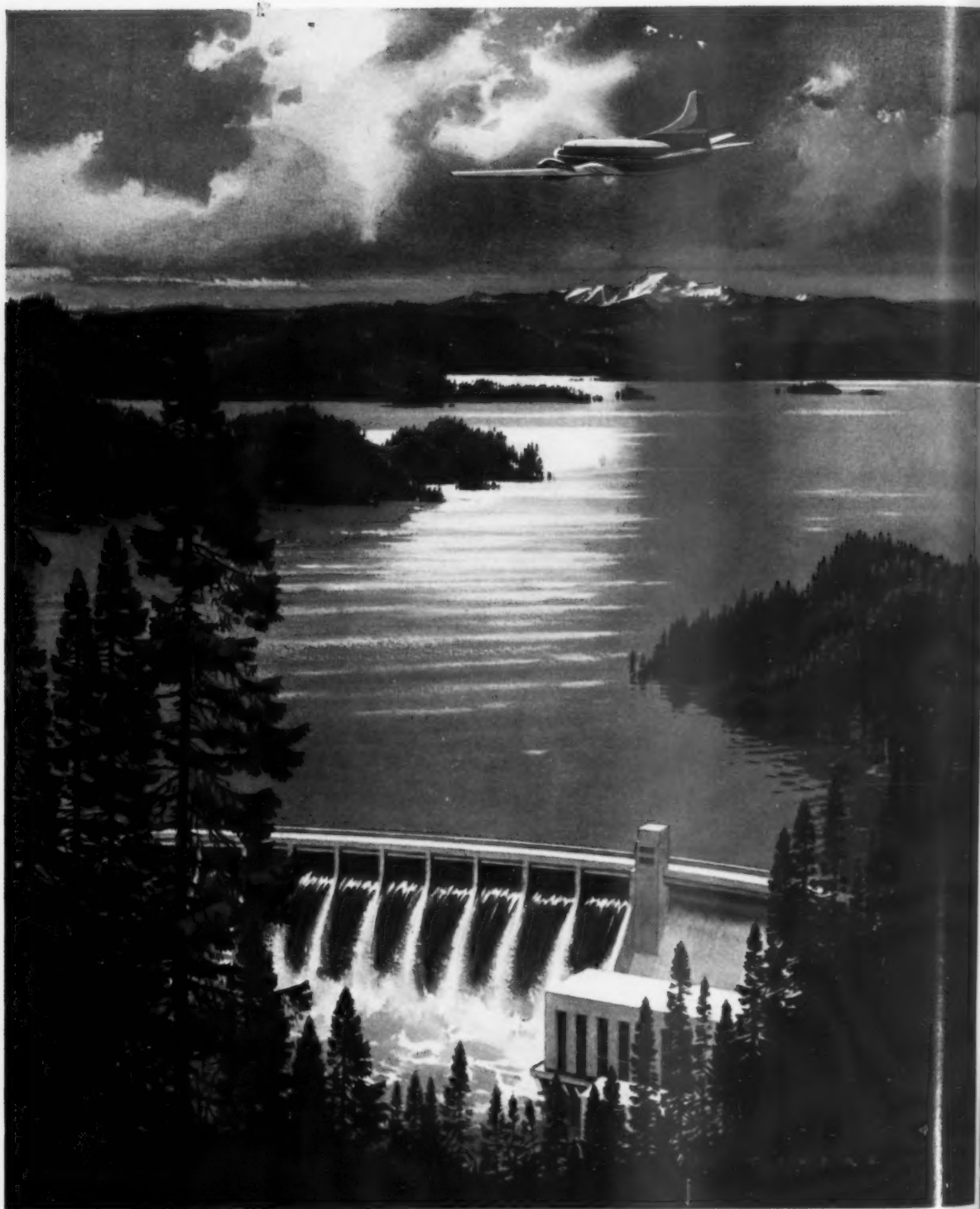
Western begins Convair
modification 30



Pilot standards stiffened
by new rules 51



WASHINGTON 25 D C
DEPT. OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
COORDINATOR OF LIBRARIES



133 out of 133 Martin 202's and 404's in service or on order are equipped with Hamilton Standard Hydromatic propellers. In fact, Hydromatics now are specified for 98% of all U. S. transports.



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a LOOK at the WEEK

Lag time involved in bringing reserve plants back into production is important factor in future plane build-up. Although Lockheed and Douglas have been preparing their Marietta and Tulsa plants for B-47 production for months, neither plant is scheduled to produce a Stratojet until spring of 1953.

Many of the foreign airlines which opposed Pan American's trans-Atlantic tourist rate proposal may take the opposite view if a new meeting is held next month. Foreign governments interested in obtaining U. S. dollars have come around to Pan-Am's idea. CAB, however, is still the driving force behind early start of tourist service.

USAF believes all available commercial overhaul and maintenance contractors will have all the military work they can handle within six months. Bidders on military contract maintenance work are already scarce.

Although Alcoa's castings plant is again producing, the recent strike's effects will be evident for months. Pratt & Whitney won't put many of its workers back on a 48 hour week until possibly November, causing still more delays in engine deliveries.

Phase I, or design study contracts, will go to Lockheed, Republic and Convair as a result of the USAF's 1954 interceptor competition. Convair proposed a delta wing model.

U. S. engine builder is dickering for rights to manufacture the French Turbomeca light jet engine. Although thrust rating is low, the engine is expected to run 1,000 hours between overhauls.

Britain expects to obtain a number of Fairchild C-119's under the MDAP program to bolster its air lift capacity.

Aides to Economic Stabilizer Eric Johnston say he is "still definitely undecided" about approving a regulation tying wages to the cost of living but he is almost sure to do so. Wage Stabilization Board unanimously approved the regulation.

Kansas floods cost Trans World Airlines the equivalent of one month of this year's profit. Officials add they're talking about the year's best month.

AF Build-up to 163 Wings

A build-up of USAF strength to 163 wings is provided in a bill introduced by Rep. Carl Vinson, (D., Ga.), chairman of the House Armed Services Committee. He plans to ask for funds for the increased strength in fiscal 1953.

Makeup: 138 combat wings plus 25 wings of troop carrier aircraft for joint Army-Air Force operations.

Manpower: Some 300,000 men (presumably above the 1,061,000 now authorized) will be needed.

Cost: Additional bases to support the bigger USAF will cost about \$400,000,000. Vinson gave no estimate of the procurement costs.

The Georgia Democrat also proposed a Navy authorization to build two more super carriers like the 59,000 ton USS Forrestal now under construction.

Martin Losing \$5,000,000 On 4-0-4

The Glenn L. Martin Co. expects to lose about \$5,000,000 on its commercial 4-0-4 twin-engine transport project, a company spokesman has confirmed. This amounts to a loss of nearly \$50,000 per plane on the 101 planes ordered by Eastern Air Lines and Trans World Airlines. The loss was due to cost increases in labor and materials after the contracts with the airlines were negotiated. To cover the loss Martin has provided \$5,000,000 in its current fiscal year "to reduce the inventory on the (4-0-4) program to its estimated realizable value."

Martin's new base price for the 4-0-4 will be \$580,000. Different interiors and extra equipment costs are added to this base price. This compares with the pre-Korean base of \$495,000, on which the Eastern and TWA contracts were negotiated.

Trans-Atlantic Route Battle

The United States' two trans-Atlantic airlines, Pan American and TWA, last week began their bids for renewal of temporary certificates which expire next July. TWA, requesting a permanent certificate, submitted a plan for two-carrier participation over the lucrative routes to and beyond Europe. Pan Am, which owns certain permanent trans-Atlantic rights, asked for permanent or temporary renewal of the certificate it inherited last year from American Overseas Airlines. Both lines also sought route adjustments.

Proposals set the stage for a major route battle before CAB and public hearings are likely late this year or early next. TWA, opposing the "chosen instrument" doctrine, urged permanent status for its certificate to place "the established policy of regulated competition on a permanent basis." Trans-Atlantic operating rights of foreign airlines are not involved.

Five Classes of Mail Pay Proposed

Sen. Edwin C. Johnson (D., Colo.), after hearing some 30 witnesses discuss separation of air mail and subsidy payments, has introduced a new bill on the subject.

Provisions: Five classes of payments (45c, 60c, 75c, 90c and \$1.80 a ton mile): Domestic weight to be not less than 15 pounds after inauguration on July 1, 1952; International petitioner may request rate after July 1, 1953, based on Universal Postal Union schedules; Separation to be applied only to U. S. domestic, overseas and international flag carriers.

CAB Powers: Although rates are prescribed, CAB has

full authority to change the rate and may, on the basis of need, step up the rate, i.e., a carrier receiving 90c a ton for air mail may still receive a subsidy beyond the 90c.

Savings: Sen. Johnson feels some \$50,000,000 in domestic subsidies will be saved, but he would not state it would all be a real saving. Post Office will pay the full amount to airlines, but will be charged only the portion directly allotted for air mail. This will remove from the Post Office a deficit for which it is not responsible.

MANUFACTURERS

Aircraft Certificates Unaffected: Defense Mobilizer Wilson's order curtailing the issuance of rapid tax write-off certificates for 60 days will not affect applications for construction of military aircraft and guided missile plants. Facilities for urgently needed military items, including aircraft, are excluded from the suspension order.

F-84F Subcontract: Cessna Aircraft Co. will build major components for the General Motors version of Republic F-84F. Although Wichita plant will assist in original tooling, actual assemblies will be built at Hutchinson, Kan., plant.

Parker Aircraft: Parker Appliance Co.'s Pacific division plants at Los Angeles have been combined and renamed Parker Aircraft Co.

Gerity Production: Gerity-Michigan Corp., Adrian, Mich. will produce compressor front frames for the Packer version of the General Electric J-47-23 jet engine.

Missile Plant: Consolidated Vultee's new \$50,000,-000 guided missile plant at Pomona, Calif., will be ready for production next March. First missile to be built there will be Convair's Terrier.

Southwest Loses Case: Southwest Airmotive Co. has been ordered to operate its Love Field engine test stands only between 7:30 a.m. and 5:30 p.m. on weekdays and a maximum of 10 nights a year. Nearby residents had objected to noise in a court suit. SAC will probably appeal because defense contracts make night testing mandatory.

F-86H Production: North American Aviation has received a USAF letter contract for production of the F-86H. Plane will be a daylight fighter like the 'D' but will have better performance and altitude.

NAA Material Moves: North American Aviation's material division, including purchasing, has moved to 827 North Douglas Street, El Segundo, and this becomes firm's freight address instead of Inglewood.

X-5 Maintenance: Pacific Airmotive Corp. will do the maintenance and other field service work on the Bell X-5 now flying at Edwards AFB. PAC has done similar work for McDonnell and Republic planes at the test center.

Kellett Free: Kellett Aircraft Corp. is no longer being supervised by Philadelphia's Federal Bankruptcy Court, but the court is retaining jurisdiction in two matters involving claims by Coldaire Corp.

Claim Settled: Douglas Aircraft Corp. and Canadair Ltd. have settled their litigation over the sale of Douglas spare parts by Canadair for just a bit less than \$1,000,000. Douglas had sued for \$1,400,000. Canadair retains the right to make parts for the DC-3, C-47, DC-4 and C-54. Canadair also may manufacture for sale in Canada and Britain the North Star, the DC-6, DC-6A and DC-6B.

Canberra Wings: Kaiser Metal Products, Inc., known as Kaiser Fleetwings, Inc., during the war, has received a contract to build wings for the Martin B-57A Canberra. More than 7,000 workers will be hired at the

Bristol, Pa., plant, which will have 200,000 square feet added to its present 550,000 square feet. Fleetwings built more than \$73,000,000 in plane parts and accessories during war.

People: Stanley B. Kurzina, Jr., appointed v.p.-operations for Wright Aeronautical . . . **Ralph S. Trigg** named chairman of Defense Production Administration's Requirements Committee . . . **John G. Wood**, former chief engineer for GMC's Chevrolet Division, named consultant to Aircraft Production Board.

PLANES & EQUIPMENT

T-28 Rework: North America's T-28 basic pilot trainer will also become a USAF gunnery trainer. USAF plans to refit 175 of the planes with guns, rockets and gunights at a cost of about \$8,000 a plane.

De-icing System: An improved pneumatic de-icing system has been developed by B. F. Goodrich Co. for the Douglas AD Skyraider. The new method involves a shorter cycle of pulsation that produces faster ice-breaking action.

Super Connie Orders: Lockheed now has 62 of its Super Constellations ordered by five airlines, with Air France's request for 10 bringing commercial backlog on the L-1049C to \$96,041,000. Military orders jump the backlog to about \$250,000,000.

Viking Record: Navy's Martin Viking VII has set a new single stage altitude record of 135 miles at White Sands Proving Ground. Top speed during the flight was 4,100 mph.

Forming Process: A new metal forming process developed by Charles Demarest, chief tooling engineer for Viv Pastushin Industries, Los Angeles, reportedly save 75% of cost and 80% of time required to fabricate jettisonable fuel tanks.

Swift Flies: Britain's first swept wing jet fighter to go into production, the Vickers-Armstrong Supermarine Swift, has made its first flights.

Cessna 308: Cessna Aircraft Co.'s new model 308, designed as a military or civilian ambulance plane, has made its first flight. The plane is powered by a 375 horsepower, direct drive Lycoming engine and uses a Hamilton Standard propeller. Gross weight is predicted at 4,200 pounds; empty weight 2,682 pounds; wing span 47 feet; military payload over 1,000 pounds. The 308 may also be used for liaison, reconnaissance, photography and small cargo.

C-54 Overhaul: Texas Engineering & Manufacturing Co. expects to move all of its overhaul work on Douglas C-54's to Majors Field, Greenville, Tex., by end of year. More than 600 will be employed there.

C-97 Training: Boeing Airplane Co. has received a USAF contract for flight engineer simulators for the C-97. The training aids will be used to check out MATS and Air Training Command flight engineers in C-97 operation.

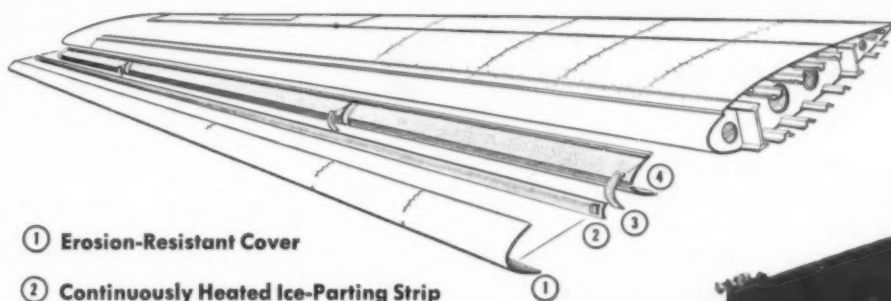
De-fog Chemical: Regal Air Corp. has introduced RA-12, a chemical to combat fogging on aircraft windshields. It is sprayed on the surface with a plunger type atomizer and is said to last up to 30 days.

AIRLINES

DC-4 Purchase: American Airlines has bought a 44 passenger Douglas DC-4 from Western Air Lines and plans to use it in the Korean air lift. WAL says it sold the plane because of today's high price and because of its coming DC-6B equipment.

C-46 Usage: Flying Tiger Line has completed con-
(Continued opposite page 62)

DIAGRAM OF TYPICAL GOODYEAR ELECTRO-THERMAL ICEGUARD



- ① Erosion-Resistant Cover
- ② Continuously Heated Ice-Parting Strip
- ③ Continuously Heated Dividing Strip
- ④ Cyclic Heated Ice-Shedding Area



First Commercial Jet Plane

In North America adopts **GOODYEAR ICEGUARD** equipment

THE AVRO Jetliner—first commercial jet plane in North America—is protected against icing up to its 30,000-35,000 foot ceiling with Goodyear Iceguard equipment on leading edges of wings, cabin air intakes, horizontal and vertical stabilizers.

The Iceguard uses the principle of electro-thermal de-icing developed by The National Research Council of Canada. Resistance wire elements, molded into a special erosion-resistant synthetic rubber compound, generate heat for de-icing.

On the Canadian-made AVRO Jetliner the Iceguard equipment—designed, fabricated and installed by Goodyear—is only 1/10 inch thick, giving maximum ice protection with minimum thickness and a glove-like fit.



The Iceguard is one more in a long list of contributions to safer flying that make Goodyear Aviation Products first choice of private and commercial operators the world over. Write for details today.

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American Aviation

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AUGUST 20, 1951 • Volume 15 No. 12



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Cover Photo

NEW CHAIRMAN OF THE AIRCRAFT PRODUCTION BOARD and Deputy Defense Production Administrator for Aircraft Production is Harold R. (Bill) Boyer, on leave from his post as Director of Production Engineering for General Motors Corp. A graduate of Massachusetts Institute of Technology, he has been associated with the aircraft and automotive industries for many years. Just after World War II broke out, Boyer was named director of the aircraft manufacturing division of the Office of Production Management, which later became the War Production Board. He joined GM's Chevrolet division in 1943 to work on aircraft engine production. Boyer has also served as director of several firms producing aircraft components. He is president of the Detroit Aviation Commission and holds a private pilot's license. In his new post, Boyer will have complete control over plane production, including the headaches involved in getting enough machine tools and scarce materials.

other publications

American Aviation Daily (including *International Aviation*): Published daily except Saturdays, Sundays and holidays. Subscriptions: \$16 one month; \$180 one year. Daniel S. Wents II, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy, \$5.00. Marion E. Grambow, managing editor.

Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, \$9.00 one year, Canada, \$9.50. All other countries, \$11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. State 2-2154. C. N. Johnson, managing editor.

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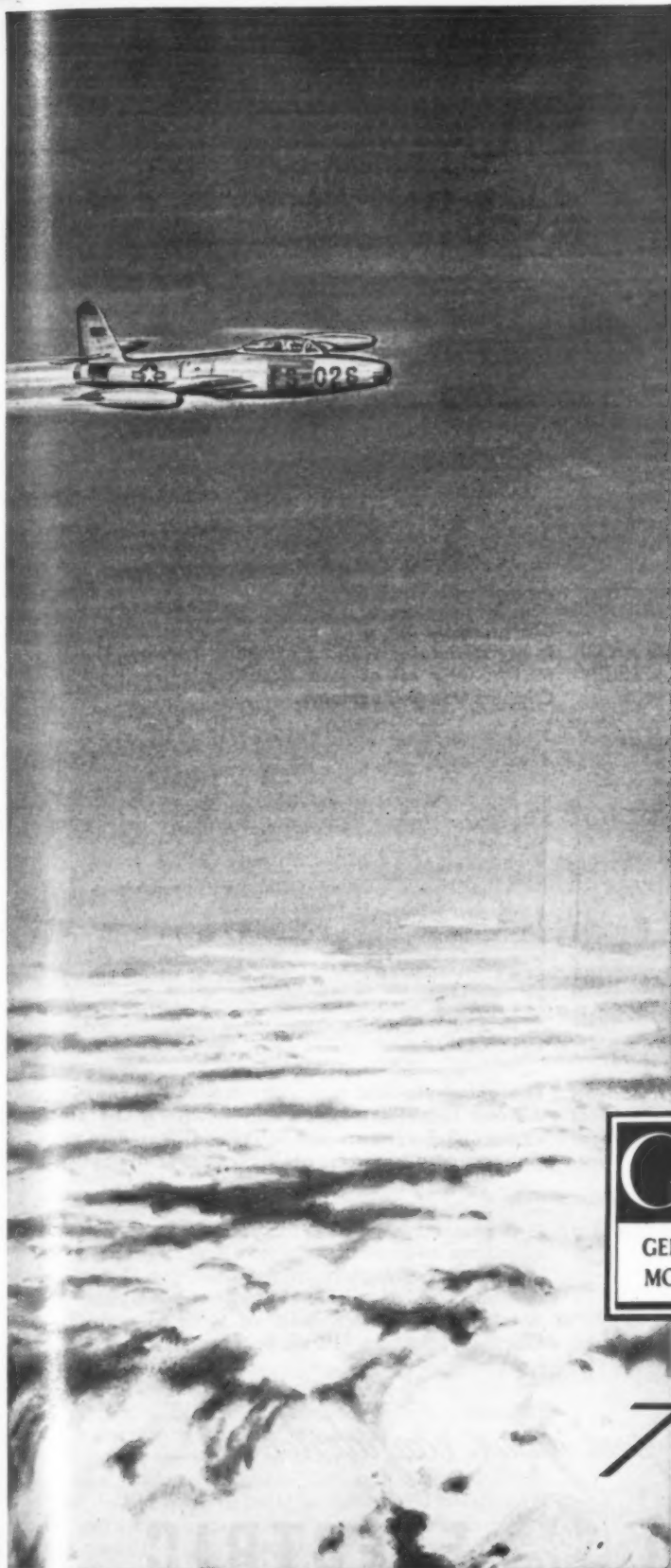
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AVIATIO



Sweeping past the 1,000,000th hour

OVER a target in Korea, on a flight from an American base — at home, in Alaska, in Japan or somewhere in Europe, or from the deck of a Navy carrier, an unknown jet pilot has just made aviation history.

Reports just tabulated from fighter squadrons all over the world record that Allison-powered jets recently swept past the 1,000,000th hour mark to establish another "first" for these famous Allison J33 and J35 Turbo-Jet Engines.

More than 10,000 of these high-powered, battle-proved engines are piling up a record of availability and reliability never before equaled. They lead the world in experience—in actual time in the air. And, even more important these Allison engines have met *and have exceeded* every military specification for operation and performance—*under the stern test of combat!*



Builders of J35 Axial, J33 Centrifugal Flow Turbine Engines, the J35-A-23 Super-Jet and T40 Turbo-Prop Engines

Allison
DIVISION OF GENERAL MOTORS

DIVISION OF GENERAL MOTORS
INDIANAPOLIS, INDIANA

DEFENSE IS EVERYBODY'S BUSINESS — AIR POWER IS EVERYBODY'S PROTECTION

AUGUST 20, 1951

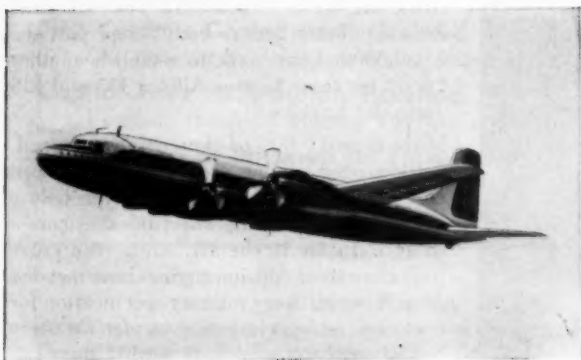
Here's why THE NEWEST AND BIGGEST AIRLINERS ARE BEING EQUIPPED WITH G-E ELECTRICAL SYSTEMS



Lockheed's new model Constellations, and all Super-Connies use General Electric protective systems. G-E provides the fastest possible tripping of overvoltage faults—and freedom from nuisance tripping.



G-E provides the only positive method of isolating a faulty generator without affecting service. That's one reason why all of Pan American's Boeing "Strato" Clippers use G-E systems.



New Douglas DC-6B's being built for Pan American World Airways will be equipped with G-E electrical systems. G-E provides the most complete electrical protective systems ever placed in production for commercial transport-type aircraft.

The list of planes using G-E protective systems is a roll call of today's most popular aircraft. Are your planes listed among them?

One serious fault that damages electrical equipment in just one of your aircraft could cost you more than



The country's first turboprop transport—the Convair-Allison Turboliner—is equipped with a G-E electrical system. G-E systems are tailor-engineered to give the protection you need for ordinary or special applications.

G-E protective systems for your entire fleet. Can you afford *not* to investigate?

For more complete information get the new fact-crammed bulletin GEA-5628. Telephone your General Electric aviation specialist or write General Electric Company, Section 210-16, Schenectady 5, New York.

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AUGUST

Editorial

Good News Ahead

TWO RECENT developments in Washington assure the continuance of a strong and ever-growing airpower program for the United States.

On the production side, Harold Boyer, the able new chairman of the Aircraft Production Board, has lost no time in getting into his job and there are now sound assurances that current and prospective bottlenecks in the aircraft program will be ironed out. Boyer is a good man.

On the planning side, there has been fine progress by leaps and bounds. Representative Carl Vinson's bill for increasing Air Force strength to 163 wings is a tremendous step forward. But it is important to know that this proposal is not just wishful thinking: it has the approval and go-ahead from the White House, the Pentagon, and both political parties. Real airpower is in the cards.

Lost Opportunity

WHEN the history of postwar air transport is compiled, one of the strangest developments to be chronicled will be the attitude and/or inertia of the certificated scheduled air carriers toward the entire non-scheduled and air coach problem.

It is certainly crystal clear that the certificated airlines have a vital stake in the development of an economically sound air transport system. The value of a certificate of public convenience and necessity is unquestioned, and the best continuing proof of this is the running battles fought among the carriers themselves for protecting or extending these certificates before the Civil Aeronautics Board.

Yet the record shows that the certificated carriers have sat back ever since the rise of the non-skeds in 1946 and let the CAB carry the ball for the protection of these valuable franchises. The certificated carriers have grumbled, griped and groaned, as might be expected, but they have largely passed the buck to the CAB as if they themselves were only vaguely concerned with the problem.

The public relations aspect has been neglected almost completely, but not because the matter hadn't been called to the attention of the carriers. Arthur Kelly, vice president-sales of the pioneer airline, Western, proposed almost two years ago that the certificated carriers identify themselves in advertising with an emblem which would make it possible for the traveling public to distinguish between the certificated operators and the non-skeds. But this and other suggestions fell on deaf ears.

The main attack on the non-sked problem has been in the form of legal petitions and complaints by the certificated carriers. Truly constructive corrective measures have been absent. The public, in the meantime, has been left in a state of confusion, both as regards the distinguishing features between

the two types of carriers and as regards the reasons for fare differentials.

But quite apart from the relationship of the certificated carriers with the public, press and Congress, there was another step which could have been taken which would have gone a long way to solve the non-sked problem. Many carriers have been short of equipment, especially when the Korean air lift demands were made. But instead of buying up the non-sked equipment, even at premium prices (which could have been liquidated in a short time during the current traffic boom), the airlines simply cut schedules and the bulk of these schedules were for cargo at a time when cargo traffic was getting heavier. The shortage of airplanes in the certificated industry has been more artificial than real.

Meantime the CAB has been taking a beating because of the non-sked situation. Far from being the servant of the certificated industry, the CAB was established to be a regulatory agency for the public. The CAB must listen to the public and to Congress and so far it has done an admirable job, especially in the light of constant legalistic complaints from the certificated carriers, in holding the line for the protection of a sound air transport industry, the latter being definitely in the public interest anyway.

In getting their story over effectively the non-skeds have outflanked and outmaneuvered the certificated carriers right down the line. The fault does not rest with the Air Transport Association, which is doing an excellent job under the circumstances, but with the certificated carriers themselves who have a story and have hardly budged an inch in telling it.

Even in the lower-fare air coach field some of the certificated carriers were slow to grasp the opportunities offered, and slow to sense the trend of public thinking. The initiative of Capital Airlines, which led the way in air coach in the face of much skepticism (including ours), is to be commended most highly, while American Airlines subsequently led the way transcontinentally and National Airlines sized up the situation wisely on the east coast. The last holdout was United Air Lines which finally starts transcontinental coach service September 30, although it had reluctantly entered the San Francisco-Los Angeles coach market sometime ago due primarily to competitive factors.

There are economics in air transportation which aren't easily understood by the lay public or by a Congress under pressure from skillfully directed propaganda machines. The certificated carriers have had a good case. But they have already missed, in the past five years, the greatest opportunity they will ever have to get their story across on the offensive. From now on it will be a problem of meeting one crisis after another, of being on the defensive, of putting out fires that might never have been started. They have succeeded in rather magnificent fashion, too, in alienating a great many friends both in government and out. To put it mildly, the time is getting a little late.

WAYNE W. PARRISH

Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

More Push Wanted

To The Editor:

When are the people that run our airlines going to grow? They spend more time and money, childishly watching, afraid some other airline is going to get more than they.

If they would pool some of their advertising money and spend it on constructive advertising, they might get another 10 or 20% of the non-flying public in the air. Now it seems they spend most of that . . . in attempting to extol the advantages of their lines over those of their competitors. In other words fighting for the same passenger. I won't go into the treatment some of the passengers get. Bulk the advertising, take full-page ads, mention safety percentages, and list every scheduled airline in the nation. There are not so many, that they can't mention all of them.

If the airlines kept pushing as a group, there would be less talk about business going to the non-skeds.

JAMES G. MAHER
New Brunswick, N. J.

Merge—or Submerge?

To The Editor:

Just a note regarding Professor Dim-Wit's proposal (Dr. Koontz' airline merger proposal in the July 9 issue—Ed.) that Capital Airlines be split up into

several pieces in order to achieve a fifth or sixth transcontinental air carrier, which we need like we need another hole in our heads.

One of the biggest troubles in air transport is monopoly—and you don't kill monopoly by killing off the little fellows, but rather by chopping down the big ones.

Capital Airlines happens to be ONE airline that is giving monopoly a hard time, so this bird picks on us.

WARREN W. ANDREWS
Chicago, Ill.

Alert Readers

To The Editor:

We were much interested to see the short item on page 50 of the June 25th issue of AMERICAN AVIATION describing a rig developed at United Air Lines' San Francisco maintenance base by lead mechanic W. W. Erickson for reassembling exhaust collector rings of our R-4360 engine after overhaul.

Basis of this rig, according to your item, is a circular steel plate, 72 inches in diameter, with hydraulic cylinders inset at fixed intervals, which exert pressure against the support fittings while an over-center clamp on the superstructure holds the ring.

Your item says "see photo" but the accompanying illustration does not appear to have any connection with this rig. If you have a copy of the photograph which does show this rig, we would very much like to have a look at it.

Our inspection people would also like to know how much pressure is exerted by those hydraulic cylinders, when reassembling. We do this by hand, without mechanical aid, when reassembling

after the first, or green, running-in and tear-down, but perhaps the amount of distortion to be coped with after more prolonged running called for such assistance.

If it should be necessary to forward this inquiry to United Air Lines for further information, perhaps you would be good enough to do so and suggest that they reply to us directly.

FREDERICK R. BREWSTER
Pratt & Whitney Aircraft

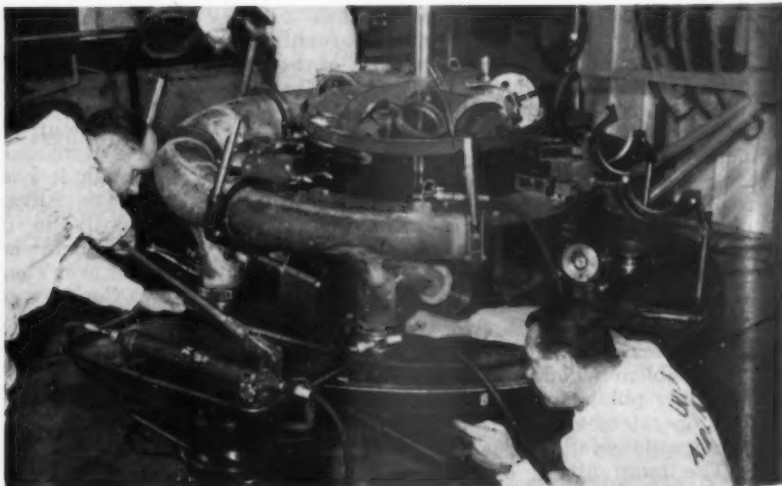
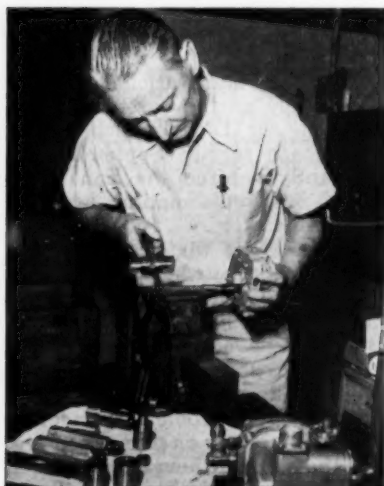
United Air Lines has a list of about 20 major problems presented by the R-4360 exhaust collectors during post overhaul assembly. We are making this list available to P&W and reprint here the photo which should have accompanied the item in the magazine. In answer to the specific question regarding pressure, UAL uses pressures up to 10,000 pounds per square inch of 8,600 pounds force in either direction at each piston.—Ed.

To The Editor:

I am writing this letter requesting some information on a photo that appeared in your issue of June 25, 1951, volume 15, Number 4. In this photo appeared a gentleman who, according to your article "Overhaul Jig," is overhauling exhaust collector rings for P.W. R-4360 engine. Meanwhile in another magazine, I noticed the same photo, but with a different explanation on worn propeller governor bushings.

Now I would like to know which of these articles corresponds to the heretofore mentioned paragraph.

MICHAEL J. POLLINA
Aerovias Nacionales De Colombia, S. A.
Barranquilla, Colombia, S. A.

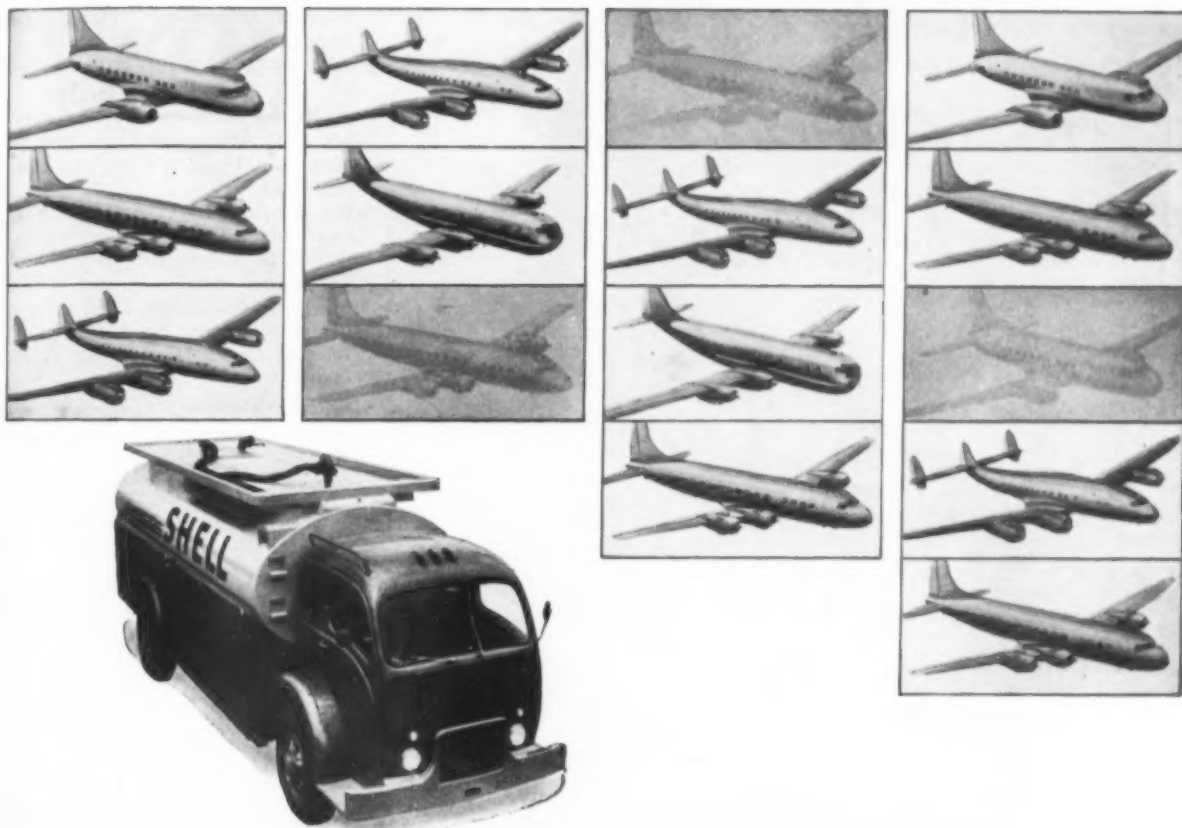


This is for propeller governor bushings . . . while this jig simplifies overhaul assembly of exhaust collector rings.

AMERICAN AVIATION READERS lost no time in telling us we had slipped when the picture on left appeared with item on overhauling exhaust collector rings in June 25 issue (p. 50). We

bow to our observant readers and set the record straight with the missing overhaul jig photo on the right. See letters above.—Ed.

SHELL Is a Major Supplier of AVIATION FUEL to 12 of the 15 Domestic Trunk Airlines



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AUGUST 20, 1951

Aircraft Instruments and Controls



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When & Where

- Aug. 22-24—Inst. of Radio Engineers and 7th ann. Pacific electronic exhibit.
- Aug. 22-26—99's Int'l conv. Mackinac Island, Mich.
- Aug. 24-26—Air Force Assn., ann. convention, Los Angeles.
- Aug. 25—Air Transport Command reunion, Ambassador Hotel, Los Angeles.
- Aug. 25-29—Nat'l Flying Farmers Assn. 5th ann. conv., Ft. Worth, Tex.
- Sept. 10-14—Instrument Soc. of America 6th Nat'l Instrument Conf. and Exhibit, Sam Houston Coliseum, Houston, Texas.
- Sept. 23—Dedication of Adm. Bldg., Des Moines Airport, Iowa.
- Sept. 25-28—CAA Airport Advisory Committee, Special Airport Design Meeting, Washington, D. C.
- Oct. 2-4—Aircraft Spark Plug and Ignition Conf., Hotel Secor, Toledo, Ohio.
- Oct. 4-6—Southeastern States Airport Operators Council, Manteo, N. C.
- Oct. 8-10—Air Transportation Committee, American Inst. Electrical Engineers, Los Angeles.
- Oct. 11-12—Airport Management and Opns., 1951 Conf., U. of Okla., Norman, Okla.
- Oct. 16-17—Fourth Annual New York State Conference on Airport Development and Operation, Onondaga Hotel, Syracuse, N. Y.
- Oct. 18-20—Fifth Annual Arizona Aviation Conference, Phoenix.
- Oct. 24-27—NASAO annual meeting, Arizona Inn, Tucson.
- Oct. 31-Nov. 1—Society of Automotive Engineers, Fuels and Lubricants Meeting, Drake Hotel, Chicago.
- Nov. 28-30—Aviation Distributors and Manufacturers Assn., Annual Winter Meeting, Waldorf-Astoria Hotel, N. Y.
- Dec. 17—15th Wright Brothers Lecture, U. S. Chamber of Commerce Auditorium, Washington, D. C.

International

- Sept. 3-14—Third Intern'l Conf., convened jointly by the Royal Aero. Soc. and the Inst. of the Aero. Sciences of America, Brighton, Sussex, Eng.
- Sept. 4—ICAO, SAR, 3rd session, Montreal.
- Sept. 10—IATA 7th Ann. General Meeting, London.
- Sept. 11—ICAO, Legal Committee, 8th Session.
- Sept. 11-16—Soc. of British Aircraft Constructors, 12th Flying Display and Exhibition, Farnborough, England.
- Oct. 9—ICAO, MAP, 5th session, Montreal.

FOR TOP PERFORMANCE . . . backed by . . .

the superior strength of steel

increased resistance to abrasion

reliability of control under ALL conditions of climate and weather

provision for progressive growth in aircraft weight



has selected **CURTISS ELECTRIC PROPELLERS**
with hollow-steel blades



*These high-capacity propellers will equip an advanced fleet of
Wright-powered **LOCKHEED SUPER CONSTELLATION TRANSPORTS**
for KLM's far-flung international operations linking 5 continents, 56 countries,
73 cities, with a 95,103 mile network of routes.*

CURTISS-WRIGHT
CORPORATION

B.F. Goodrich



New kind of tire outwears all others in airline tests

A NEW IDEA in aviation tires, designed to give longer service life, has been introduced by B. F. Goodrich.

Instead of the conventional ribbed tread, the new tire has rows of "dimples" — round indentations in the rubber.

B. F. Goodrich engineers had two things in mind in developing the new design: (1) provide better distribution of the load, and (2) reduce exposure to tread cutting. In early airline tests, the results were even better than expected. Other airlines agreed to test the new tires. Various sizes were tested, on DC-3s, DC-4s, and DC-6s.

This report from West Coast Airlines is typical: "We removed the tires after 400 hours, 1200 landings. In the process of recapping, we discovered that there was enough rubber left for about 100 hours more, a total of 1500 landings. These tires have given us longer service than any we have used."

Some of the airlines that tested the new tires and are now using them as standard equipment are Braniff, United, American, Continental, Frontier, National, and West Coast. Still more airlines are now starting to switch.

This new, longer wearing tire is the

latest B. F. Goodrich "first" in aviation tires. Others include the first Type II (high pressure), forerunner of the Type VII. The first Type III (low pressure). The first practical prerotation tire. First recommendation of multiple tires for commercial use. First inertia type dynamometer for tire testing. The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.

B.F. Goodrich
FIRST IN RUBBER

AMERICAN AVIATION

\$15 Billion for Aircraft - More Coming Soon?

(Air Force, Navy Fiscal 1952 Funds Approved by House of Representatives)

	Appropriations, 1951	Approved in bill for 1952	1952 bill compared with 1951 appropriations
Air Force			
(All figures in thousands)			
Aircraft and related procurement	\$ 7,292,000	\$11,215,800	+ \$3,923,800
Major procurement other than aircraft	1,610,007	1,750,000	+ 139,993
Acquisition and construction of real property	1,448,148	85,000	- 1,363,148
Maintenance and operations	3,024,218	3,208,442	+ 184,224
Military personnel requirement	1,935,500	3,016,700	+ 1,081,200
Research and development	297,611	425,000	+ 127,389
Reserve personnel requirements	39,818	17,543	- 22,275
Air National Guard	103,935	87,900	- 16,035
Contingencies	39,824	40,600	+ 776
Total	\$15,791,061	\$19,846,985	+ \$4,055,924
Navy			
Construction of aircraft and related procurement ..	\$ 2,880,629	\$4,000,000	+ \$1,119,371
Operation of aircraft and facilities	902,693	923,393	+ 20,700

October: Crucial Month for Plane Industry

Rate of build-up or slow-down hinges not only on international tension but on ability to produce.

By JAMES J. HAGGERTY, JR.

OCTOBER looms as a crucial month for the aircraft industry. It now is marked as the "time for decision" when top-level Administration officials and the military will decide just where the rearmament program is going. This is the basic theme running throughout the volumes of testimony by the Department of Defense on the current fiscal year's appropriations.

The House has passed a \$56 billion defense appropriation, the greatest of any "peacetime" year. It includes about \$15 billion for the procurement of military aircraft. But the "October decision" may possibly reduce these staggering sums to pauperism.

Keynote of the October theme was sounded by the Air Force's Brig. Gen. Horace A. Shepard, director of Procurement and Engineering. Despite an Air Force request for more than \$11 billion for aircraft procurement, Gen. Shepard told the military subcommittee of the House Appropriations Committee

that the money would not finance a full year's production. Ordinarily, the USAF asks for enough money to finance production for one fiscal year. Why the deviation?

"The reason for this 'short ordering,'" Gen. Shepard explained, "is to permit reexamination of the international situation in the fall of this year, with a view to either continuing our presently planned aircraft production rates, building up to still higher production rates, or alternatively rescheduling to lower production rates aircraft included in this budget, provided conditions justify such action."

Meanwhile, the Air Force will continue its build-up toward the currently authorized 95 wing strength, but apparently at a minimum rate.

Why has October been selected as the month of decision?

• (1) Top Defense officials feel that by that time we will know definitely the outcome of the Korean situation, an important factor before any decision can be reached. The cost of the Korean

war for the current year is not even included in the \$56 billion defense appropriation; it will have to be paid for in a supplemental appropriation. If the fighting is to continue, the amount of that supplemental will be astronomical and will have a great effect on any expansion plans, if a balanced economy is to be maintained.

• (2) The European situation, it is believed, will be clearer by October. There are few who expect a lessening of the tension, and even a more orderly Europe would have little effect on expansion plans, for the Administration is apparently determined this time not to be lulled into a sense of false security. However, the degree of tension will determine the rate of expansion of our armed services; whether, for instance, we must have a 163-wing Air Force by 1953 or 1954 or whether we can drag out building a force of the same size over a longer period.

• (3) October is the decisive month in procurement planning. February, 1952, is the last date by which new orders may be placed to keep the production flow on an orderly basis in continuing the program beyond orders to be placed

out of fiscal 1952 funds. Working backward, the budget planners have decided that in order to determine their requirements, have them approved by the Administration and submitted and passed by Congress, October is the last month in which the "decision" can be made.

There is perhaps a corollary reason for selecting October as the month of decision. The production program has run into so many snags of late that appropriations no longer govern the rate of expansion. The new governing factor is "producibility," or the ability of industry to meet the schedules. At the moment, producibility is at low ebb. Generally, airframe manufacturers can meet the schedules; but a plane without an engine or its electronics equipment isn't worth much.

At the moment engine and electronics schedules are far behind and the machine tool problem has become critical, particularly in the engine industry. The entire output of the machine tool industry would barely be enough for the aircraft industry alone, but the aircraft industry is not getting the entire output.

Only 5,000 Planes

The services do not want airframes sitting on factory ramps waiting for component items. Thus, there is no point in ordering large numbers of non-flyable aircraft, particularly since it is not yet clear just what numbers and what delivery schedules will be required. So a temporary slow-down of deliveries is called for. This is apparent by Air Force testimony before the committee, particularly that of Gen. Shepard: the money in the basic 1952 budget will buy only about 5,000 planes, certainly not enough to build 95 modernized wings by deadline date—fall of 1952.

So delivery schedules of planes will probably be cut back in the next few months in order to concentrate on elimination of the bottlenecks. Such a slow-down would be only temporary and would not necessarily cause great deviation from the current expansion timetables. Work on "expansibility," or broadening the production base, is still going forward at a steady pace, and once the machine tool, engine and electronics bottlenecks have been eliminated, schedules can be stepped up again to fit in with the build-up timetables.

Even without a crystal ball, it is possible now to predict what the "October decision" will be as regards aviation. Taking Gen. Shepard's three alternatives, it appears very unlikely that there will be a general slow-down, unless the bottlenecks prove insoluble. It is also unlikely that the presently-authorized goals of the air services will be maintained, unless there is an unforeseeable change in the international

How Defense Leaders Look to October

The theme of Department of Defense testimony on Capitol Hill was this: The appropriations now pending passage, large as they are, are not going to be enough. Just how much more will be needed is not yet known; it will be determined during a "period of decision" this fall, specifically, in October. Here are some significant quotes extracted from the printed hearings:

Air Force Secretary Finletter: "I believe that we do need and will need an increase in the striking force of the Air Force and that it may be necessary to request supplemental appropriations during the current fiscal year. I point this out particularly with respect to the procurement of aircraft in connection with the statement of the numbers of aircraft presently contemplated and the time when a new decision as to the future of the Military Establishment would have to be made, later this year."

USAF Comptroller Lt. Gen. Edwin N. Rawlings: "It is very important that this policy be clear to anyone reviewing our estimates; it is one of deferment of funding requests until a 'period of decision' is reached in autumn of this calendar year. It is the belief of the Defense Department that requirements can, and should be, reappraised in the light of developments at that time. We specifically wish to point out that the funds requested in these estimates will not completely provide the requirements of a fully modern 95-wing Air Force but will carry us at the build-up rate until a more desirable time to review our position, requirements and the world situation."

USAF Director of Procurement and Engineering Brig. Gen. Horace A. Shepard: "If either of the first two alternatives (continuing present production rates or building up to still higher rates) is adopted during the program of reexamination in the fall, it will be necessary to seek further appropriations in order that additional aircraft may be placed on contract no later than February, 1952."

situation, not just a lessening of tension but a definite move toward world peace.

It can be safely predicted that the October decision will be to build the Air Force up to something approximating the currently proposed 138 combat wings plus 25 supporting troop carrier wings and to expand Naval aviation by the proposed two additional super aircraft carriers, some smaller carriers and about 10 carrier groups.

The important part of the October decision will be the rate of build-up; this will hinge not only upon the evaluation of the international situation but upon an evaluation of industry's producibility at that time.

Meanwhile, the basic 1952 defense budget, which should rightfully be called Part I of the 1952 budget, is threading its way through Congress. There appears to be little chance that it will not pass in something close to the form approved by the House of Representatives last week. Here's how it stacks up:

Air Force

Aircraft procurement—\$4.4 billion, but \$1.5 billion of this goes to pay for aircraft ordered last year, when the USAF ordered 3,092 planes out of a supplemental appropriation late in the year, but made only a "down payment" of \$330,000,000 for them. This move was necessary to get the time-consuming preliminaries, such as preproduction

planning, engineering, material ordering, etc., out of the way.

Another \$625,000,000 goes to liquidate debts contracted under the former "contract authority" provision. This latter sum is extra and not included in the \$4.4 billion. The procurement allocation will permit purchase of something over 5,000 aircraft (the original number was 5,604, but \$500,000,000 was cut out of the appropriation by the committee).

Initial components and spares—\$4.2 billion, for the purchase of spare components and spare parts for the first year's operation of the planes to be bought above. Engines and engine spare parts made up about 60% of this heading.

Related aircraft procurement—\$1.5 billion. Major item is industrial machinery, equipment and facilities, about \$1.1 billion. Other items include ground handling equipment, training aids, pre-production costs and service test material.

Major modification and modernization of aircraft—\$263,000,000, to bring planes now in service up to performance standards of their later counterparts now coming off production lines.

Guided missiles—\$130,000,000, chiefly for production of five undesignated missile types.

Industrial mobilization—\$9,000,000. Major portion of the industrial mobili-



FIRST FLIGHT of one of Navy's newest jet fighter developments, the McDonnell XF3H-1 Demon, was completed at Lambert-St. Louis Municipal Airport on August 7. Flight lasted 24

minutes with Robert M. Edholm, McDonnell Aircraft's chief test pilot at the controls. Plane is powered by Westinghouse jet engine.

zation program was accomplished last year. This year's funds go mainly for improving manufacturing processes and eliminating or reducing the use of critical materials.

Personnel costs—\$56,000,000, for pay of personnel engaged in procurement or production administration work.

Major procurement other than aircraft—\$1.7 billion, for procurement of such items as weapons and ammunition, electronics and communications equipment, vehicles, navigation aids, etc.

Maintenance and operations—\$3.2 billion for operating, overhauling and servicing in-service aircraft.

Research and development—\$425,000,000.

The remainder of the Air Force appropriation is for pay of personnel, acquisition of real property, Reserve and Air National Guard maintenance and "contingencies."

Naval Aviation

Aircraft and related procurement—\$4 billion, which includes purchase of an undisclosed number of new aircraft and spares for them, as well as production tooling and facilities costs. Included also is \$49,000,000 for aircraft ordnance, such as guns and fire control equipment; \$33,000,000 for procurement of guided missiles and target drone aircraft; \$29,000,000 for modernization of in-service aircraft; and \$10,000,000 for purchase of technical equipment for service training. \$450,000,000 comes out of the \$4 billion to pay off previously incurred debts under the contract authority provision.

Aircraft and facilities—\$923,000,000, for operation of Naval aircraft and maintenance of aviation facilities.

Army

Aircraft procurement—\$44,239,000 for the purchase of approximately 1,600 liaison planes and helicopters.

Boyer's First Aim: More Plane Tools

Aircraft Production Board must get materials, labor—and provide incentives for expansion.

By ROBERT M. LOEBELSON

WITH all the talk about the need for a big buildup of military airpower, government and industry leaders are well aware that quantity plane production is threatened by an engine shortage which can not be broken until the present bottleneck in production of machine tools is ended.

The new chairman of the Aircraft Production Board, Harold R. Boyer, is on record as saying that the aircraft industry alone can use the entire output of tool builders this year.

Machine tools are now being turned out at the rate of \$675,000,000 a year. But the Munitions Board and the Office of Defense Mobilization indicate that by next June 30, some \$2,900,000,000 in machine tool orders for defense production will have been placed—far more than the tool industry can produce in several years at the present production rate.

Many of the nation's 1,700,000 machine tools have already been diverted to aircraft and other defense production but the shortage is still critical. And some 35,000 pieces of production equipment stored by the U. S. after V-J day are again in service. Unfortunately, however, many of the stored and diverted machine tools are unsatisfactory or obsolete, most of them not being precise enough to handle today's complex airplanes, engines and component parts.

Government officials faced with the problem of expanded production for defense know that they must encourage rapid expansion of the machine tool in-

dustry or else acknowledge failure. They have tried to find out why tool production capacity is now only one-third what it was when World War II began. They have investigated the incentives tool builders want. They have explored the possibilities of subcontracting. And this is what they have discovered:

- **Some 250 companies** turn out most of the machine tools. All of them put together are still smaller than a firm like International Harvester Co.

- **When these 250 tool builders** are asked to double or triple production, they simply don't have the financial means to do so.

- **Tool builders are afraid** that if the international tension should suddenly ease, the U. S. will repeat its post-war actions by flooding the market with slightly used tools and again drive many manufacturers out of business.

What They Want

At meetings with National Production Authority officials, members of the Machine Tool Manufacturers Industry Advisory Committee have indicated what they would like to have before embarking on a big expansion program. They asked for:

- **Super-priorities for materials, facilities and tools.** NPA has set aside large quantities of controlled materials for tool builders and has given them first call on delivery of machine tools.

- **More skilled labor** and assurances that war plants will not be permitted to

Index 1947 - 49 = 100

Chinese Intervention

Korea

Orders

Shipments

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THE TREMENDOUS WALLOP packed by the Northrop F-89, the USAF's most heavily armed all-weather interceptor, is apparent in this photo, taken while the F-89 was firing five-inch rockets

at a ground target at Edwards AFB, Muroc, Calif. The F-89 carries 16 five-inch HVAR's (high velocity aircraft rockets), eight under each wing, plus six 20mm cannon.

New Views Of Military Planes



THE WING-TIP PODS on this Douglas C-124A "Globemaster" prototype are experimental heating units for the thermal anti-icing system. Soon to become standard on production models, they will replace the six heaters which are at present built into the wings. The bulbous nose is an experimental radar dome.

BRITAIN'S FASTEST AIRCRAFT, the Hawker P-1067 Superjet, is powered by a Rolls Royce Avon which develops nearly 7,000 lbs. thrust. The swept-wing fighter, having recently completed its

first flight tests, is slated for immediate production in quantity for the Royal Air Force.



Cost Comparison, P-51 Versus F-86

North American Aviation

	Low-rate production First 620 airframes		High-rate production 4,000 airframes	
	P-51 unit cost	F-86 unit cost	P-51 unit cost	F-86* unit cost
Airframe weight (pounds)	4,268	6,801	4,646	7,400
Engineering hours	414	3,368	82	190
Cost per hour	\$1.69	\$4.20	\$2.20	\$5.20
Engineering cost	\$698	\$14,146	\$181	\$988
Tooling hours	877	3,587	203	363
Cost per hour	\$2.33	\$4.06	\$3.45	\$5.42
Tooling cost	\$2,044	\$14,576	\$700	\$1,965
Factory labor (hours)	7,375	17,838	2,354	4,600
Labor rate	\$8.73	\$1.50	\$1.14	\$1.80
Factory labor	\$6,441	\$26,831	\$2,683	\$8,280
Burden rate (percent)	90	122	126	135
Burden	\$5,823	\$32,760	\$3,377	\$11,178
Material	\$11,735	\$32,819	\$7,176	\$25,543
Total airframe cost	\$26,741	\$121,132	\$14,117	\$47,954
Elapsed time (months)	15	30	10	10
Production rate (units per day)	4	1	20	20

* Estimated

Why New Military Planes Cost More

Rising production figures are due largely to increased engineering complexity.

PRECISE reasons why airplanes now cost so much more than they did a few years ago were provided for the House Appropriations Committee in some unusually detailed and illuminating testimony by J. H. "Dutch" Kindelberger, chairman of the board of North American Aviation.

Earlier, the committee had been somewhat shocked to learn from military testimony that the average Navy plane bought in the coming year will cost close to \$900,000 and that Air Force planes, on the average, will cost almost as much. Chairman George Mahon (D., Tex.) of the military subcommittee, fearing that the military might not be properly dollar-conscious, wanted some expert non-partisan testimony on the subject, so he invited the opinions of Kindelberger and J. L. Atwood, North American's president.

Generally, the NAA executives told the committee, there are two reasons for the alarming up-trend in the cost curve; the country's inflated economy and the demand for greater performance in today's planes. Inflation, although it has sent the cost of labor and plane components skyrocketing, is not the major reason. Increased aircraft performance needs have increased com-

plexity and it must be paid for in hard cash.

To illustrate the point, Kindelberger drew a cost comparison between his company's war-time P-51 Mustang, top fighter of its day, and the F-86 Sabre jet fighter, one of the standard USAF jets today.

First, he pointed out, the airframe cost (this excludes engine, electronics, etc.)

of the P-51 was \$26,741; for the F-86 it is \$121,132. Inflation, of course, had a hand in setting that differential: the labor rate for the P-51 was 87 cents, compared with \$1.50 for the F-86; an engineering hour on the P-51 cost \$1.69, compared with \$4.20 for the F-86.

But the major factor in the cost rise was the complexity of the F-86 in comparison to the P-51. For instance, based on first 620 of each type:

- **Airframe weight** of the F-86 was 6,801 pounds; the P-51 weighed 4,000.

- **The elaborate tooling** required for the F-86 demanded more than four times as many tooling hours as did the P-51.

- **Engineering hours** necessary for the F-86 amounted to eight times as many as for the P-51; factory labor hours were about two and a half times as great.

- **Cost of materials** alone for the F-86 ran close to three times the P-51.

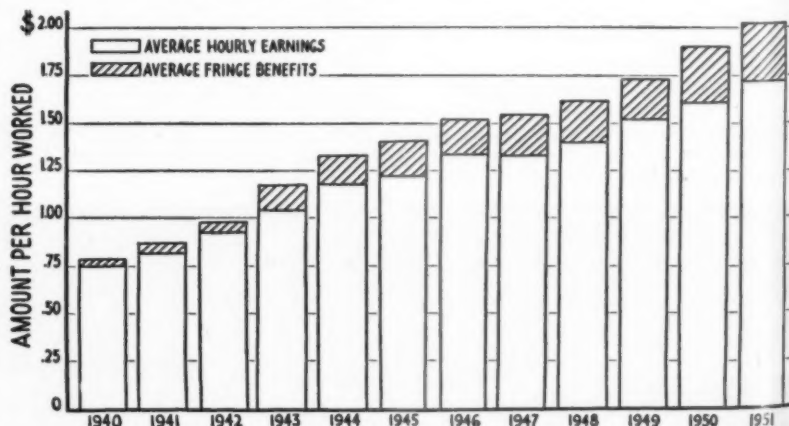
In high-volume production, the F-86 fares better in the comparison, but the cost of complexity is still apparent. Kindelberger projected some F-86 estimates based on production of 4,000 planes and compared them to actual production costs of 4,000 F-51's:

- **Airframe weight** of both planes is higher, but the F-86 still weighs more than half again as much as the P-51.

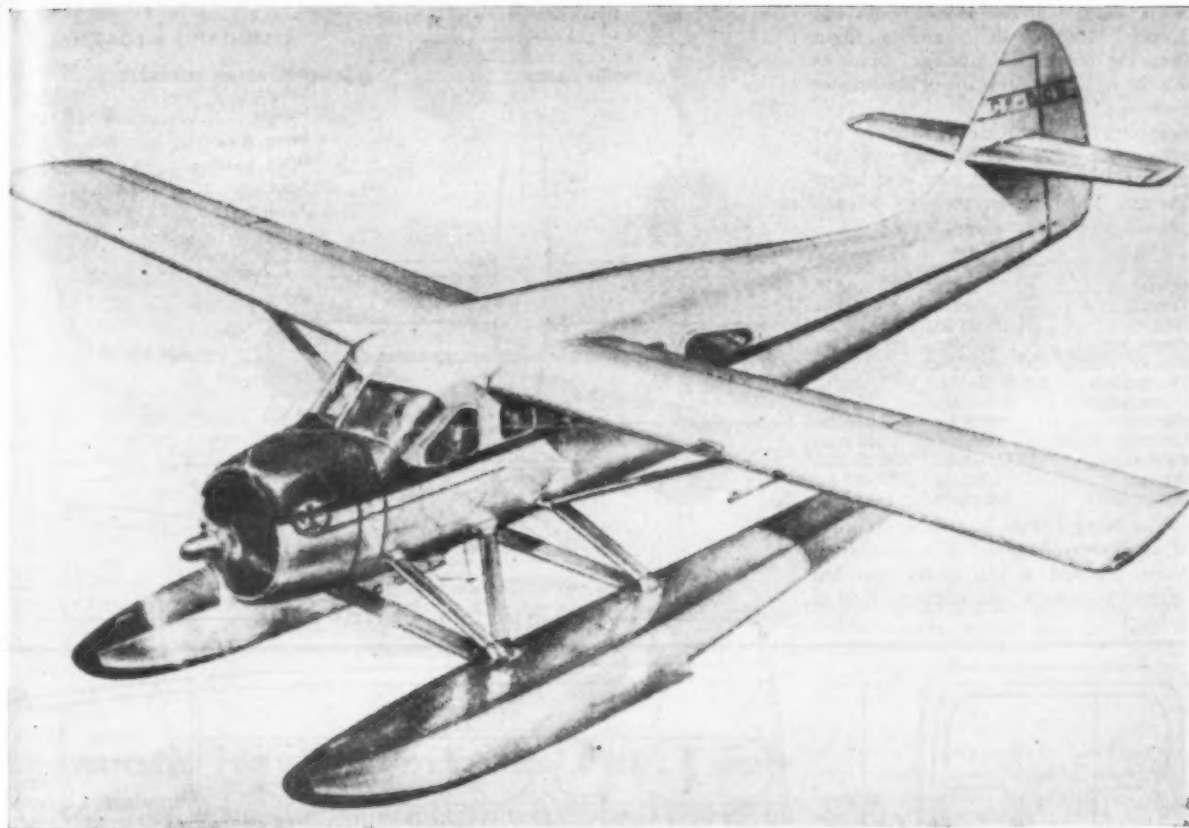
- **Engineering hours** of both planes are down considerably, but the F-86 needs more than twice as many and the cost per hour is almost two and one half times as much.

- **Factory labor hours** for the F-86 are almost exactly double the P-51 requirement and labor cost per plane is more than trebled.

- **Material costs** are down on both types due to volume, but the materials for the F-86 cost three and a half times as much as those for the P-51.



LABOR COSTS, according to this chart, have risen almost \$1 per hour per man in 11 years. Fringe benefits alone—vacations, sick-leave, paid holidays, insurance, social security payments, etc.—are equivalent to each of North American Aviation's 28,000 employees being paid for more than seven weeks not worked.



DE HAVILLAND'S KING BEAVER is shown in flight in this artist's sketch of the prototype scheduled to fly in September.

New King Beaver to Fly Next Month

de Havilland DHC-3 with 600-hp Pratt & Whitney R-1340 engine will carry up to 14 passengers.

THE prototype model of the King Beaver, an enlarged version of the popular de Havilland Beaver, is now underway at de Havilland Aircraft of Canada and plans are being made for initial flight tests in September.

The DHC-3 Beaver, as the new plane is formally designated, will carry up to 14 passengers, with performance closely paralleling the DHC-2 Beaver. This has been made possible by increasing engine power from the 450-horsepower Pratt & Whitney R-985 to the 600-horsepower P&W R-1340.

Primarily designed for the Royal Canadian Air Force, the King Beaver will be built with provisions for wheels, skis or pontoons. Operating weights and general performance for each model vary slightly, from 7200 pounds in either model up to 7500 pounds in an advanced version.

At 7200 pounds gross weight the land-plane version will take-off over a 50-foot

obstacle in 1,000 feet, no wind, climb at 1,050 feet per minute and have a maximum range of 1100 miles or 8.5 hours' endurance. Maximum sea-level speed is 165 mph or cruising speed at 400 horsepower (66% power) is 145 mph. The seaplane version requires 1200 feet for similar take-off, climbs at 1,000 f.p.m. and cruises at 155 and 133 mph respectfully. Seaplane performance is based on use of the Edo 7170 floats.

The engine which makes this performance possible is the geared version of the P&W R-1340. Power loading of the King Beaver is 11.9 pounds per horsepower.

Several versions of the King Beaver will be offered, each suited to special route or mission requirements. Highest passenger-carrying capacity is provided by a version with 14 passenger seats. Eleven seats, five along the left side and six along the right, all facing the aisle,

plus two forward facing seats in the rear of the cabin and a single seat in the co-pilot position make up the 14-passenger provisions.

A roomier arrangement is provided in the ten-passenger version which is equipped with easily removable seats for cargo shipments. In this version (see drawing) there are five seats on either side of the center aisle, all facing forward. The rear seats can be folded back against the rear cabin bulkhead and the side seats folded up flush with the ventilating ducts.

The third proposed layout is for an ambulance ship carrying three litters and seven seats, or six litters and four seats. The litters are stored three high on either side of the center aisle at the front of the plane with the four rear-most passenger seats remaining in place. A 46-inch door is provided to facilitate loading.

Other changes in the King Beaver will include a redesigned landing gear arrangement, additional windows (six on each side instead of one) in the

cabin, the use of the 46-inch (and one 30-inch) loading door, and a slight rounding out of the fuselage, eliminating the relatively flat walls of the smaller Beaver.

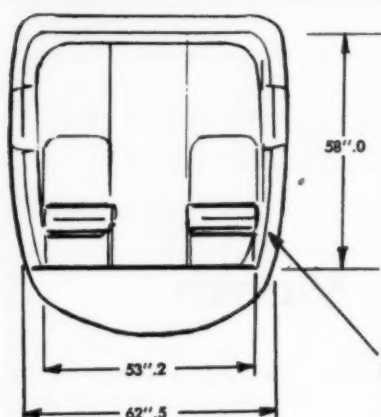
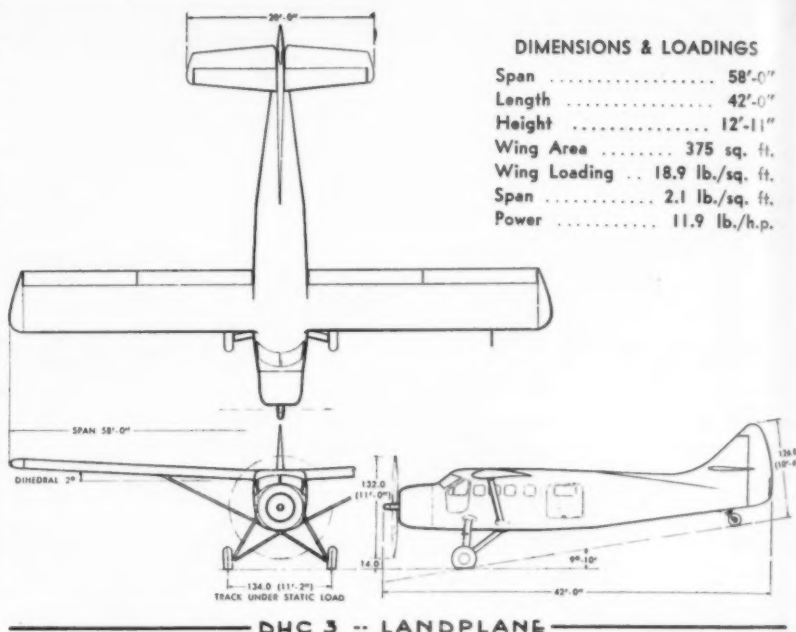
While the King Beaver retains the appearance and performance of the smaller DHC-2, it is a new and larger aircraft. This is best seen by a comparison of the two planes:

	King Beaver	Beaver
Span	58 ft.	48 ft.
Length	42 ft.	30 ft. 9 in.
Height	12 ft. 11 in.	10 ft. 7 in.
Gross weight	7,200 lbs.	4,650 lbs.
Empty weight	4,000 lbs.	2,775 lbs.
Powerplant	P&W R-1340	P&W R-985
Horsepower	600	450
Payload	2,000 lbs.	1,025 lbs.
Cruising speed	145 mph	153 mph
Fuel supply	228 U.S. Gal.	71 U.S. Gal.
Range	1,000 mi.	480 mi.
Cabin area	260 cu. ft.	144 cu. ft.

The King Beaver is another example of an improved model of a production plane planned several years ago but delayed because of the apparent lack of a market.

DIMENSIONS & LOADINGS

Span	58'-0"
Length	42'-0"
Height	12'-11"
Wing Area	375 sq. ft.
Wing Loading	18.9 lb./sq. ft.
Span	2.1 lb./sq. ft.
Power	11.9 lb./h.p.



NOTE —
REAR BULKHEAD CANVAS &
FABRIC, QUICKLY REMOVABLE, WITH
REAR SEATS, FOR SPECIAL CARGO
LOADINGS

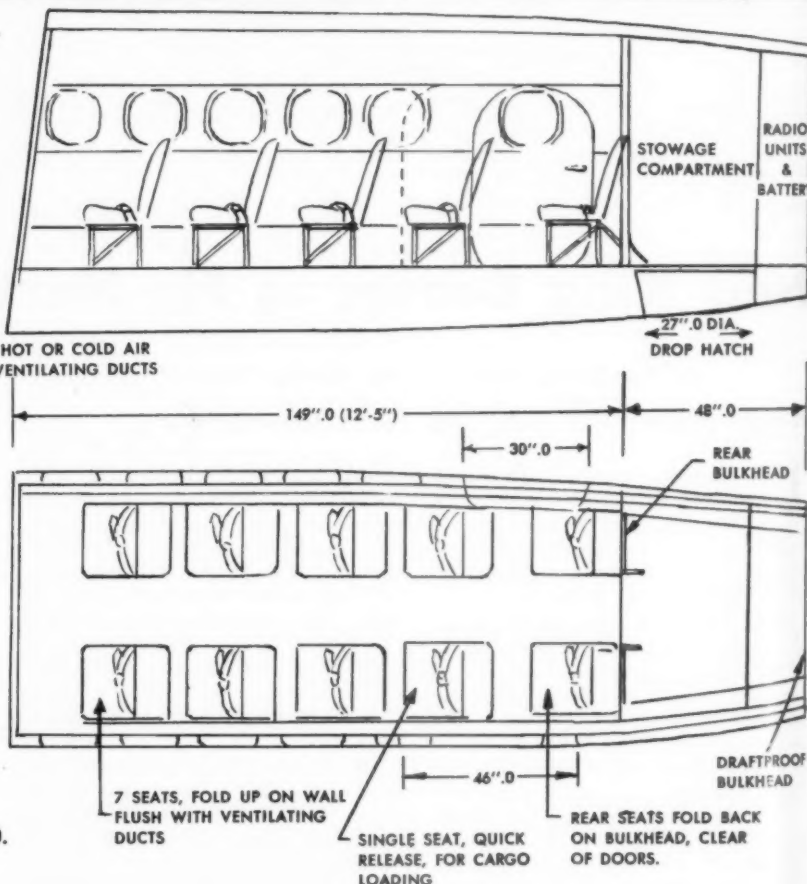
CABIN LAYOUT FOR

10 PASSENGERS
AND/OR CARGO TO SUIT

DE HAVILLAND AIRCRAFT OF CANADA LTD.

TORONTO — CANADA

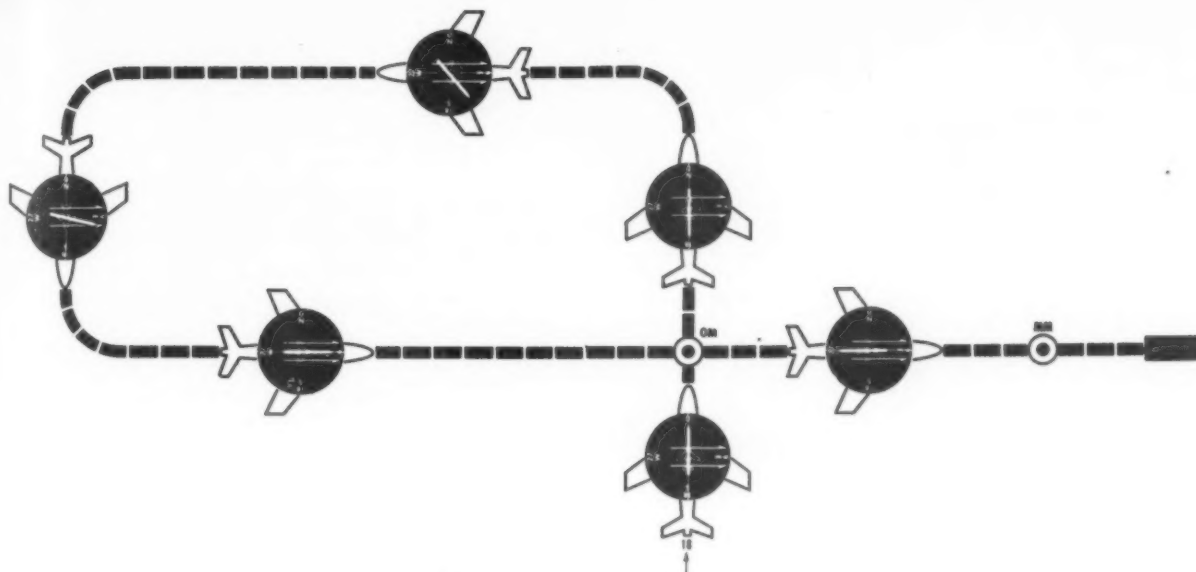
C3-X-76



DHC-3...KING BEAVER

CABIN ARRANGEMENT shown here is one of several being considered for the King Beaver. In the 14-passenger version there are five seats on the left, six on the right, all facing the center

aisle. The 14th passenger occupies the co-pilot position. When litters are used the first three seats on either side of the cabin are removed and the litters stored three deep.



THE LEARMATIC NAVIGATOR as a landing aid points up characteristics valuable in navigation and terminal area problems. Note that the course selector gives a constant reference to the

runway heading, the compass card follows aircraft progress toward that heading and the radio compass pointer tells the pilot his position along the approach path.

Learmatic Navigator Eases Pilot's Job

New composite course instrument simplifies flight with pictorial data needing no interpretation.

A NEW navigation instrument, known as the Learmatic Navigator, has been announced by Lear, Inc. of Los Angeles. The Learmatic is another in the series of new instruments designed to simplify the pilot's job in flying the airplane, to provide pictorial information requiring no interpretation and to tie in with the navigation and landing aids forming the "Common System."

Basically, the Learmatic is a magnetic compass indicator equipped with a compass needle, course selector and lubber line. These functions are integrated in a manner making the unit unusually versatile in meeting the pilot's needs during all flight conditions. One glance at the instrument shows that this has been accomplished in a very simple manner with virtually no possibility of confusing the busy pilot.

Simplified Flying

Some of the flight functions which this instrument simplifies for the pilot include:

- (1) For turning to the correct course immediately after takeoff from a strange field.
- (2) For flying a straight, no-drift course toward any radio station.
- (3) For remembering and flying a

radio range course and for the accurate determination of crab angle necessary to maintain the course, as well as the direction and velocity of the relative wind.

(4) For flying a straight and predetermined course away from any radio station, thereby making omni-ranges of all radio stations.

(5) For instrument letdown to any radio range station.

(6) For quickly finding the proper runway on any strange airport.

(7) For remembering and flying a localizer course and for determining the crab angle and relative wind thereon.

Since the Learmatic Navigator presents information sensed by the radio compass receiver, remote indicating compass and omni-range receiver, it does not bring new functions into the cockpit but rather provides a composite instrument which presents these closely allied factors on a scale also showing aircraft heading and desired track.

The instrument face is formed by the black-faced magnetic compass or azimuth card (see drawing) driven by a synchronous motor from a remote indicating compass. Mechanically overlaid on the compass card is the adjustable course selector. This is attached to the compass card in such a manner that

it normally rides with the card presenting a continuous picture of the desired course. When the pilot adjusts the course selector knob on the face of the instrument, a friction clutch permits the course selector grid to move independent of the compass card.

The radio compass pointer, also usable as an automatic omnipointer, fits immediately above the course selector. A selector switch can be provided which connects any of the three compass receiver signals to the single compass pointer, in effect duplicating the multiple needle functions of the radio compass.

Approach Aid

Finally, the instrument glass forms the cockpit side of the instrument with the lubber line printed on its face. Resting over the black compass card face, the lubber line provides a constant indication of aircraft direction as read on the compass card and easily checked against the desired heading shown by the course selector.

Most of the Learmatic Navigator functions are illustrated in the use of the instrument as an approach aid (see drawing). The pilot uses the outer marker of the instrument landing system as a non-directional radio beacon for orientation. To do so he tunes in the frequency of this marker which he will intersect at right angles to the instrument runway.

The pilot sets the course indicator to

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ran its first advertisement in American Aviation Magazine. We've both come a long way since then, and today Chicago & Southern Air Lines continues its advertising messages in American Aviation on a consistent schedule. We're proud of this experience-proven confidence.

The most important companies in aviation, who know and have grown with this great industry, advertise consistently in the most important magazine in aviation...

**Integrity
Influence**



the magnetic heading of the runway, in this case 90 degrees. While approaching the outer marker, the radio compass needle points to the marker aligning with the lubber line of the aircraft. At a glance, the pilot can realize he is approaching the marker at right angles to the runway. As he passes over the marker, the radio compass pointer swings 180 degrees, pointing aft of the plane.

Relation to Marker

The pilot now makes a 90-degree turn outbound, evident when compared with the course selector grid, and starts flying a standard approach to the end of the runway. At all times en route the compass needle shows the plane's relation to the outer marker. As the plane approaches the intersection of the runway extended, this is apparent because the radio compass pointer nears alignment with the course selector grid. Making a 90-degree turn, the pilot starts flying toward the outer marker.

As the plane flies along this course the lubber line, radio compass pointer and course selector grid are all aligned. When the plane passes over the outer marker the needle again swings 180 degrees and the pilot tunes in the middle marker. The compass needle again points ahead of the reference plane painted on the glass until the pilot passes over the middle marker. The centered radio compass needle thus guides the aircraft directly down the center of the runway.

People in the News

Igor Ivan Sikorsky has been awarded the Daniel Guggenheim Medal and certificate for 1951 "for a lifetime of outstanding contributions to aeronautics."

Lt. Gen. Albert C. Wedemeyer will become a vice president and director for the Avco Manufacturing Corp. September 1.

Harry K. Clark has been appointed as Deputy for Production in the office of Roswell L. Gilpatrick, Assistant Secretary of the Air Force. He is president of the Carborundum Co. of Niagara Falls.

Warren Lee Pierson, chairman of the board of TWA, and Earl F. Slick, board chairman of Slick Airways, have been named members of the Transportation and Communication Committee of the Chamber of Commerce of the United States.

Dr. E. G. Bowen, chief of the Radio-physics Division of the Commonwealth Scientific and Industrial Research Organization in Sydney, Australia, has been given the Institute of Navigation's Thomas L. Thurlow Award for 1950.

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VIATION



DESIGNED SPECIFICALLY FOR AIR FRANCE, the S.O.30P Bretagne is a 30-passenger plane powered by P&W R-2800 engines.

Will French Aircraft Cut into U. S. Market?

Reporting on a month-long tour of aircraft plants in European countries, the European Survey Group of the Prototype Aircraft Advisory Committee warned that technological developments and the currency problem may cause the U. S. to lose much of its foreign market for transport aircraft and helicopters.

Typical of the aircraft referred to by the survey group, three French designs which attracted special attention during the recent air exposition in France are shown on this page.

Breguet 76-3: Fifteen of these four-engined ships, powered by Pratt & Whitney R-2800 engines, are being built. Gross weight is 52,536 pounds, span 140' 10", length 94' 11" and height 31' 4". Cruising speed is 224 mph. A double-deck design, it is arranged to carry as few as eight or as many as 130 passengers with remainder of load made up of cargo.

S. O. 1120 Ariel III: A three-seater, all-metal helicopter powered by a Turbomeca turbine and compressor unit. Successor to the S. O. 1110 Ariel II, a two-seater grossing 2376 pounds and cruising at 83.8 mph. Rotor diameter is 35' 5", length 24' 7".

S. O. 30P Bretagne: A 30-passenger twin-engined transport designed to meet Air France recommendations and first test flown in late 1948. Normally powered by Pratt & Whitney R-2800 engines, but one model is being fitted with Hispano-Suiza Nene turbojet engines. Grosses 42,900 pounds; span 88' 2"; length 62' 2" and height 19' 4".



THE DOUBLE-DECKED BREGUET 76-3, a combination passenger-cargo plane has been cited as a promising aircraft.



A THREE-PASSENGER HELICOPTER, the S.O. 1120 Ariel III may replace U. S. helicopters now being used in France.

AUGUST 20, 1951



MERCHANDISE DISPLAY CASES shown in background (above left) are a special feature of the lobby of fine new terminal building dedicated at Waterloo (Ia.) Municipal Airport in June. Cases are leased to Waterloo business firms and are a good source of revenue to the airport. Exterior view from field side of the \$200,000 building (right) shows full-length



thermopane windows in restaurant and lobby section to the left, and railing around spectators' ramp on roof of restaurant. A club room for private pilots in the basement is a distinctive feature of the building. Airport manager at Waterloo is Walter E. Betsworth, president of the American Association of Airport Executives.

New Airport Terminal Buildings



NEW \$700,000 TERMINAL BUILDING at Norfolk (Va.) Municipal Airport is one of finest in the country for a city of comparable size. Building is air-conditioned throughout, and a striking feature is that all baggage counters are on the outside, which facilitates handling. Passenger lobby, overlooking the field, is 63 x 43 feet. Dining room, seating over 200 people, is on second floor overlooking field. Kitchen on the second floor services both the dining room and the first floor coffee shop. Also on second floor are the CAA communications offices, airport manager's office, and the Weather Bureau. Radar and radio rooms occupy third and fourth floors, while tower is on fifth. Architect Vernon A. Moore designed the terminal. W. H. Lyons is airport manager.



ANOTHER STRIKING NEW airport administration building in the South is this \$300,000 structure at Baton Rouge's Harding Field. Built to replace a World War II wooden structure, the building was started in December, 1949, and was dedicated recently this year. Outstanding features of the terminal, which consists of a two-story main building and a five-story tower, are extensive use of glass to provide maximum observation and wide use of aluminum and stainless steel for utility and cleanliness. Three airlines—Eastern, Delta and Southern—use the building. George E. Campbell is airport manager.

Industry Personnel

G. H. Abeel and Harry Hjorth have been named assistants to Douglas Aircraft Co.'s vice president-military sales; N. A. Baird has been picked assistant to the vice president-engineering; and H. E. Riggins, Jr., has been selected contract administrator for Douglas' Long Beach Division . . . Kaman Aircraft Co. has named Charles L. Morris service manager; J. J. Carson director of purchases; Robert Williams purchasing agent; Daniel Carpenter subcontract coordinator; A. G. Odell industrial relations director; E. G. Conway production manager; E. F. Gaughan factory superintendent; and Dr. J. H. Gelb chief of mechanical design . . . Fred Trygg has been selected general foreman of Lockheed Aircraft Corp.'s new Beverly Hills feeder plant . . .



Taylor

Nelson

T. L. (Tommy) Taylor, former customer relations manager for The Glenn L. Martin Co., has set up an aviation consultant service in Baltimore and Washington . . . Southwest Air-motive has named J. J. Nelson purchasing agent . . . Bendix Aviation Corp. has picked Donald M. McGrath general manager of its new Utica, N. Y., division and C. H. DeGraw is factory manager there . . . Edward F. Kolar succeeds McGrath as general manager of Bendix's Red Bank Division, while George E. Steiner, general manager of Scintilla Magneto Division, will also hold the same post at the Montrose Division . . . Henry W. Hanley has been appointed plant manager of the Bendix Montrose Division . . .

George H. Buchner has been named manager of spare parts administration for Northrop Aircraft, Inc. . . . Texas Engineering and Manufacturing Co. has chosen E. R. Mitchell director of industrial relations; G. M. Mosley personnel manager; and C. G. Mudd supervisor of labor relations . . . John G. Sauer has been named head of magnesium castings sales for American Radiator & Standard Sanitary Corp. . . . Raymond F. Halen has joined the Parker Appliance Co. as aircraft sales engineer . . . Chrysler Corp.'s new jet engine plant will have J. E. Engstrom as chief engineer; F. S. Mitchell as planning superintendent; W. M. Engelbrecht as general master mechanic; A. E. Hilverkus as purchasing agent; A. L. Wilson as plant engineer; and W. T. Mehl as personnel supervisor . . . Louis S. Gleason has been named superintendent of General Electric Co.'s Chemical Department plastics molding plant at Decatur, Ill. . . .

AUGUST 20, 1951

THE LIGHTWEIGHT ANSWER TO A HEAVY PROBLEM...

THE GLA IGNITION SYSTEM FOR THE Panther



On the Grumman F9F, ounces count; that's why you'll find the lightweight GLA high energy condenser discharge system doing a real heavyweight job! The Model ACD2-6 system for the Panther incorporates reliable performance from advanced electronic development with the latest weight and space saving design. Engineering and building this component for the Pratt & Whitney Nene jet engine is another example of GLA's leadership in solving the complex problems of electronic design involved in jet and supersonic aircraft.

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Production Spotlight

Convair Terrier: First production project at Consolidated Vultee Aircraft Corp.'s new guided missile plant at Pomona, Calif., will be the Navy's "Terrier," a Bureau of Ordnance rocket. The Terrier is a two-stage missile; a finned booster rocket gives it initial impetus then separates from the missile itself and a sustaining power plant takes over. Terrier is a long-slender missile with a set of four stub-wings located in the aft portion of the fuselage and four delta-type fins at the tail. It is designed for shipboard launching against attacking aircraft.

Ground was broken for the new missile plant August 6, with formal ceremonies on the 140-acre plant site, attended by top Navy officers and missile scientists. The plant, first integrated production facility for guided missiles in the U. S., will cost in the neighborhood of \$50,000,000 and will employ several thousand persons. Pending completion of the new plant, Convair's guided missile division is operating in temporary quarters in the company's San Diego plant.

Republic Aviation Corp. will get another new Long Island facility. A new building now under construction in Greenlawn, L. I., will be leased and operated by Republic upon completion. The new plant will have 46,000 square feet of factory area and will be used for production of jet fighter parts.

New Research Company: Gray and Hulegard, Inc., a new research and development company, has been formed in Los Angeles. The company is setting up facilities for research, design, development and manufacture in the fields of nuclear chemistry, electricity, sound and applied mechanics. It was founded by Carroll E. Gray, Jr., former chairman of the board of United Aircraft Products, who will serve in the same capacity in the new company, and H. V. Hulegard, former vice president and general manager of Whitcomb Locomotive Co. Hulegard will be president of the new research company.

Continental Buys Dixon: Continental Can Co. has purchased the entire capital stock of Dixon Manufacturing Co., Coffeyville, Kans., aircraft component manufacturer. The Dixon plant has 150,000 square feet and is turning out major components for the Boeing B-47 jet bomber, as well as spares for other aircraft.

Quintupled: Solar Aircraft Co.'s backlog has reached a new peak of more than \$62,000,000. The company expects to reach an output rate of \$7,250,000 a month within a year. This is almost five times the average monthly production a year ago.

Procurement Office Moves: Headquarters of the USAF's Northeastern Air Procurement District, formerly at Boston Army Base, has been moved to new quarters in downtown Boston (14-17 Court Square).

Jet Fighter Camera: J. A. Maurer, Inc., has developed a new-type camera for jet fighter aircraft and has received a \$750,000 Air Force order to put it into production. Designated the P-2, the camera is two-thirds lighter than any previous camera designed for jets. Production is now starting at the company's Long Island City, N. Y., plant.

Rapid De-Icer: B. F. Goodrich has developed a new and improved pneumatic de-icing system which operates on a shorter cycle of pulsation and produces faster ice-breaking action. The system employs smaller air tubes and higher air pressure; the tubes were reduced to one and one-quarter inches in width and air pressure increased from seven to 15 pounds per square inch. A solenoid manifold system provides the pressure and vacuum for speedier inflation and deflation. The system was designed for use on the Douglas AD Skyraider, Navy attack bomber.

Reactivated Foundry: Castalloy Co., Inc., Everett, Mass., has reactivated its magnesium and heat-treated aluminum foundry facilities for production of aircraft castings.

Turco Gets Okay: Northrop Aircraft, Inc., has given an exclusive license to Turco Products, Inc., of Los Angeles for manufacture and marketing of the Dy-Check dye penetrant inspection process.

—J. J. H.

AMERICAN AVIATION



Freedom Ship—Machine gunners keep Communist troops from closing in, as crew members of a beached Allied corvette are rescued from enemy-held shores in Korea by a U. S. Navy Sikorsky helicopter. Flown by all branches of the service, this versatile aircraft has demonstrated conclusively that even under the toughest combat conditions, it can perform vital tasks, virtually impossible by any other means.

Now a bigger 10-place Sikorsky helicopter has gone

into action in Korea. This larger type—with its greatly increased capacity, will make even more important contributions to such tasks as supply, evacuation of the wounded or trapped men, liaison, spotting and other essential military missions. To meet demands for more Sikorskys, including a new 4-place model, the Sikorsky Aircraft plant—already the world's largest devoted solely to helicopter manufacture—is being enlarged by a third.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION










AUGUST 20, 1951

27

20,000th

time over the Line



● In its 23 years of service to the Americas, Panagra has won many  s. And now still another  is pinned on a Panagra . When this Panagra flight crossed the Equator on July 26, it was the 20,000th time over the big  for Panagra. Twice a day,  DC-6's cross the line going to and from the U. S. A. and Buenos Aires. From the , it's actually 500 miles less  to the home of  via *El InterAmericano's* route from Miami* to Panama, Guayaquil, Lima, Santiago, Buenos Aires. Red Carpet Service includes Gourmet Galley meals, bed-sized berths, Fiesta Lounge, and  s. In the U.S.A., Pan American World Airways is sales agent for

PAN AMERICAN-GRACE
AIRWAYS

*Miami to Panama over the routes of Pan American World Airways.

London Letter

By Richard G. Worcester



INDUSTRY circles over here are continuing their campaign to give the British Navy control of coastal patrol aircraft, at present illogically operated by the R.A.F. (which, it is said, understands the air, but not the salty sea and ships). This question, which was raised in Parliament when the matter was initially mentioned in this column, was first answered—and apparently disposed of—by the Air Minister's denial that such a step was contemplated by his administration. The British technical press, unfriendly as it is to the Navy, made much of the denial.

Very soon, however, the matter is to be raised again, this time in the House of Lords. One argument will be that if the R.A.F. is determined to hang onto this command, it must help find a solution to those Navy pilots who, after very costly training and very short spells of active ship-based operations, have to be turned out to grass at the tender age of 28.

The first British-built GCA equipment is now in the prototype testing stage and has been delivered by the makers, Standard Telephones, to the Ministry of Civil Aviation. No details of the type of equipment are yet available but the fact that the manufacturers are understood to be ready for production suggests that this is equipment based on well-tried principles, although it may be of the remote-control type.

Although the Comet can make the London-Johannesburg run with only two refuelling stops (Cairo and Entebbe), BOAC will make five in order to carry the best payload. These will be Rome, Cairo, Khartoum (Wadi Seidna), Entebbe and Livingstone. Two legs are about 1300 miles long and the others are about a thousand miles.

The critical parts of the trip are where the Comet stops in the tropics, at Khartoum and Entebbe where the combined temperature and altitude may affect take-off and climb characteristics. Although the Comet will be able to operate through the tropics in cooler night-time conditions, it is not yet known whether or not take-off must be ruled out during hotter periods of the tropical mid-day.

The real test will come in the flights to India and beyond where the Comet must fly parallel with the equator and for much longer periods. It must be remembered that so far there have been very few tropical tests of jet performance. Comet test runs at Nairobi were made at unrealistically low gross weights, yet were bedevilled by the altitude of the field and its short length. Best weight for the Comet's operation out of Entebbe, where there is a 10,000-foot run, would probably be about 105,000 pounds.

The Ministry of Civil Aviation has recently invited the Commonwealth countries to an October conference in London. The idea is to help keep all the Commonwealth countries informed of progress made this summer with the Comets, Dart-DC-3s and Viscount transports. There is also a feeling in the wind that between now and the Fall, Britain and the U. S. are going to narrow the disagreements which exist on the matter of airworthiness of turbine aircraft. Every mile that is recorded by Britain and the U. S. makes the statistics of turbine flying mean more. It is after all only a matter of time before the accumulation of experience is sufficient to put the minds of the CAA at rest.



Sub Smasher . . . One of the most completely electronically equipped planes ever built, the U. S. Navy's new Martin P5M-1 Marlin is a deadly anti-submarine weapon designed to detect surfaced and snorkeling submarines. And, once the sub has been located, the Marlin carries the killing punch in its bomb bays to destroy the enemy raider.

The big seaplane's features—many of them still secret—are a product of teamwork among Navy BuAer, N. A. C. A. and Martin aircraft systems engineering. Long, extended hull for greater water stability—clean, streamlined profile for higher speed—hydro-flaps for fast stops and quick turns in taxiing—all contribute to the superior performance that will aid the Navy in keeping our sealanes swept clean of undersea raiders.

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AIRCRAFT

Builders of Dependable  Aircraft Since 1909

THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.



Western Begins Convair Modification

Conversion to P&W CB16's will improve performance, standardize engine overhaul, boost payload.

By WILLIAM D. PERREAULT

WESTERN Air Lines has started ordering modification equipment and will soon route its fleet of 10 Convair Liners through the hangars for a three-phase improvement program which will provide:

- An increase in allowable gross weight from 40,500 pounds to 41,790 pounds and an increase of 1200 pounds in the allowable landing weight. This program, which will start in September, requires general beefing up of the wing center-section.

- Improved performance, including about 13 miles per hour higher cruising speed by conversion of its Pratt & Whitney R-2800 CA18 engines to CB16 engines. This will be accomplished during overhaul starting early in 1952.

- Improved ignition, providing fewer mechanical delays and interruptions, by the adoption of Bendix low tension ignition for the R-2800's, a \$65,000 program which will be handled with the engine conversion.

The latter two changes are directly related to Western's order for five Douglas DC-6B's for delivery in late 1952. The CB16 engines and low-tension ignition are standard equipment on the DC-6B's and this will provide standardization of equipment which will virtually pay for the conversion by minimizing spare engine and accessory requirements.

Regardless of standardization aspects of the engine changes now scheduled, everyone at Western feels that the Convair Liner is a hard-working breadwinner and deserves the best in new engineering developments to permit it to maintain and improve its earning ca-

capacity. There is ample evidence in Western's Convair load factor and utilization that the higher gross weight allowances and higher cruising speeds can be put to work in providing greater revenue.

Since putting the Convairs in operation in the latter part of 1948 Western has consistently shown that it can make the most of new equipment. This is emphasized in every phase of the operation: traffic and sales, engineering, maintenance, etc.

Competes With DC-6

The Convairs in Western's operation are successfully competing against the four-engined Douglas DC-6 in many areas and against the highly competitive surface transportation along the coast. Take the Salt Lake-Los Angeles route. There the Convairs have virtually reversed the earlier condition where 75% of the first-class traffic was via train; today Western is handling this large segment of the passenger traffic and the railroads getting the leftovers. Train time is 13 hours versus three hours and fifteen minutes for the Convair.

Almost half of all Western flights are now Convair flights. In a recent typical month 404,026 of the scheduled 970,499 miles flown used Convairs with 377,910 handled in Western's 10 Douglas DC-3's and 188,563 in five of the company's six DC-4's.

Longest non-stop haul is the Seattle-San Francisco run, some 680 miles taking three hours. On this route, with normal weather, Western carries about 4500 pounds of fuel plus 7772 pounds payload. It is here that the Douglas DC-6B's now on order by Western will outdo the Convairs but otherwise the twin-engined Convairs are expected to

hold up well as they have against the competitive DC-6's.

A quick look at some of Western's operations shows why the Convair Liner will always prove useful over its routes. There's the Los Angeles-Long Beach flight, for instance—12 miles and 15 minutes long. Or take the case of flight 616. That originates in Yuma, where Convair operations are not practical. Connecting in San Diego with the Convairs, for a change of track, total ground time is scheduled at 20 minutes for the change-over.

Western's experience with the cabin pressurization equipment on the Convairs is typical of the attitude which has helped them lick many problems. While the other Convair operators disconnected their pressurization equipment and searched for new designs, Western kept the system operating and worked out improvements which have won the system long overhaul life and reliability. Today Western gets 2,000 hours between overhauls with the AiResearch equipment.

Good Engineering

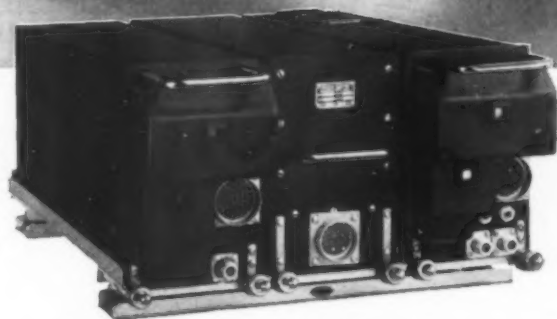
All the Convair operators had difficulties with the engine exhaust augmentor system. Cracking and burning of the augmentors was gradually licked so that Western is now getting long life from these units. A check of augmentors now in use show that one has reached 3,660 hours of service, another 3,019; most of them range between 1500 and 2,000 hours with no active problems.

Such improvements are made by sticking with the problem. Sticking with the Convair problems has meant issuing some 424 engineering changes during the plane's service life. These changes have ranged from major programs to minor fixes. In all, they've added a total of 750 pounds to the empty weight of the airplane during the past three years. Today the fleet empty weight runs about 28,400 pounds.

Augmentor extensions and beefing up have accounted for over 200 pounds of this increase. Typical weight-accumulating engineering changes:

Item	Pounds Added Per Plane
New Propellers	124
Augmentor beef-up	130
Cabin Blowers	21
Cabin Speakers	65
Airfoam seat cushions	40
Vacuum system	28
Augmentor extension	104
New Nose Wheel Strut	53
New Flooring	36

This is not a complete list, nor is it stagnant. The conversion from CA18 engines to CB16's will add some more



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180 Channel WILCOX Communications System Chosen for Eastern's Entire Fleet of SUPER CONSTELLATIONS and MARTIN 4-0-4's

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The Wilcox 440A VHF Communications System covers all channels in the 118-136 Mc. band. It is light in weight, small in size, and easy to maintain.

UNIT CONSTRUCTION FOR EASY HANDLING

The 50-watt transmitter, high sensitivity receiver, and compact power supply are each contained in

a separate JAN A1-D case. Any unit may be instantly removed from the common mount.

FINGER-TIP REMOTE CONTROL

All transmitter and receiver functions are available by remote control. A new channel selector system assures positive operation and minimum maintenance.

DEPENDABILITY AND EASY MAINTENANCE

Simple, conventional circuits minimize the number and types of tubes and require no special training, techniques, or test equipment.

Write Today FOR COMPLETE INFORMATION ON THE
WILCOX 440A 180 CHANNEL VHF COMMUNICATIONS SYSTEM

WILCOX ELECTRIC COMPANY

FOURTEENTH AND CHESTNUT



KANSAS CITY 1, MISSOURI, U.S.A.

CONVAIR TRAFFIC RESULTS

Western Air Lines

Convair 240	May, 1949	May, 1950	May, 1951
Plane Miles Flown	318,002	443,944	438,887
Seat Miles Flown (000)	12,856	16,246	16,819
Passenger Miles Flown (000)	6,222	6,476	10,256
Passenger Load Factor	48.40	39.86	60.98
% of Total Plane Miles Flown	65.27	70.70	72.31
% of Total Seat Miles Flown	72.91	81.66	83.23
% of Total Passenger Miles Flown	70.28	81.17	85.08
All Equipment			
Plane Miles Flown	487,247*	627,900	606,949
Seat Miles Flown (000)	17,633	19,894	20,209
Passenger Miles Flown (000)	8,853	7,978	12,054
Passenger Load Factor	50.21	40.10	59.65
*Includes some DC-4 operation.			
	DC-3	CV-240	
Average length of flight (mi.)	464	639	
Average length of hop (mi.)	103	270	
Average number of passengers per mi.	11.7	24.4	

weight. The CA18 weighs 2350 pounds dry and the CB16 2390 pounds. This 40-pound increase per engine will be offset in part by a 10-pound reduction per engine, saved by use of the low-tension ignition system. The conversion to low-tension ignition systems on the R-2800's represents about \$65,000 investment in ignition equipment alone.

One of the more interesting aspects of Western's Convair operation has been the manner of handling overhauls. In the post-war period all of the operators of new equipment moved toward progressive overhauls. Planes, rather than being taken out of service for an extended time for an 8-10,000-hour overhaul, are periodically given small portions of this program.

Overhaul Raised

Western did not accept this method. Instead WAL started overhauling the Convairs at 2,000 hours' flying time. As each plane has been inspected and the results checked, the remaining planes have had their overhaul time extended by 1,000 hours. It is now six overhauls later and overhaul time has been raised to 7,000 hours with the next overhaul not scheduled for four or five months yet.

Western is confident that the Convair will be approved for 12-15,000 hours overhaul time during the course of this program. Once the time element is up in this range Western may have a period of five or six years with no overhauls scheduled. Overhauls to date, on only one shift, have taken about 14 days. Manhours per overhaul have ranged from 2,300 hours to 3,000 hours.

By keeping progressive overhaul work out of line operations, it has been possible to have greater leeway in changing inspection times. Shorter elapsed time

for each operation is also assured. This is reflected in the record of time increases and the current low level of man-hours required per inspection:

Operation	Flight Time	Manhours
Station Check	Daily	6
No. 1 Operation ..	65 hours ..	28
No. 2 Operation ..	180 hours ..	48
No. 3 Operation ..	360 hours ..	135

In successive steps, Western has been able to increase the time between inspections from 50 hours to 65 for the No. 1 Operation, from 100 hours to 180 hours for the No. 2 Operation and from 200 to 360 for the No. 3 Operation.

During the same period of time, engine overhaul time on the P&W R-2800's has been increased in 100-hour increments, from 700 hours to 1,300 hours. Western operates its ten-plane fleet of Convair Liners with 34 engines. The complete engine overhaul, minus propeller, is running about 281 man-hours at present, well below last year's man-hour requirement for this job.

Normally, two men handle the routine engine changes on the Convair in about 20 man-hours. A small part of this is time spent by a third man handling the propeller end of the engine change. Western is well pleased with the maintenance aspects of the plane, particularly the utility of such things as the "orange peel" engine cowl. With this cowl three men can change the plugs and megacheck the leads in 45 minutes' time.

These factors all show up in the direct maintenance costs on the Convair Liner, which at Western range between 12 and 14 cents per plane mile. Some months this has been down to below 8c but in recent months has stabilized in the former range. This compares with total direct flying expenses of about 33c per plane mile.

Some other pertinent facts about Western's experience with the Convair-Liners:

- During three years of operation, fuel tank leaks have been virtually non-existent.
- Cabin heating, accomplished from the engine exhaust system, has been very satisfactory with no corrosion problems and plenty of cabin heat. It was necessary to increase duct size leading to the cockpit and install three 250-watt electrical heaters in the ducts.
- After about 4,000 hours' operation it was necessary to change about 30% of the cabin windows because of cracks and crazing but this has improved since then.
- With a landing every 70 minutes, the main gear times have stood up for about 270 hours and the nose gear for about 200 hours.
- The capacitance fuel-gauging system has given considerable trouble with no solution immediately apparent.

Daily Plane Utilization

International

		March	April
American	4 eng. pass.	4:28	4:30
Braniff	4 eng. pass.	7:50	7:41
C & S	2 eng. pass.	8:15	7:50
	4 eng. pass.	7:58	8:14
Colonial	4 eng. pass.	6:33	6:18
Eastern	4 eng. pass.	10:17	10:47
National	4 eng. pass.	11:24	10:53
	cargo	5:05	2:50
Northwest	4 eng. pass.	8:39	8:43
	cargo	8:31	1:00
Panagra	2 eng. pass.	3:52	3:53
	4 eng. pass.	6:34	6:10
	cargo	4:37	3:20
PAA			
Latin Amer.	2 eng. pass.	3:58	3:50
	4 eng. pass.	6:14	6:23
	cargo	4:46	4:32
Atlantic ...	2 eng. pass.	:40	:41
	4 eng. pass.	5:15	5:04
Pacific	4 eng. pass.	5:32	5:40
Alaska	4 eng. pass.	6:29	8:34
	cargo	9:18	6:42
TWA	4 eng. pass.	6:43	6:40
United	4 eng. pass.	4:39	4:34

Local Service

All American .	DC-3	6:01	6:11
Bonanza	DC-3	4:24	4:36
Central	Beech A-35	1:51	1:54
	DC-3	6:24	6:26
Empire	DC-3	4:47	4:48
Frontier	DC-3	7:18	7:34
Lake Central ..	DC-3	5:02	5:06
	Bonanza	:32	:44
MCA	DC-3	6:19	6:49
Mid-West	Cessna 190	2:33	2:46
Ozark	DC-3	4:32	6:30
Piedmont	DC-3	7:34	7:41
Pioneer	DC-3	7:39	7:22
Robinson	DC-3	5:50	5:38
Southern	DC-3	6:14	7:11
Southwest	DC-3	6:00	6:03
Trans-Texas ..	DC-3	5:51	6:21
West Coast ..	DC-3	3:43	4:39
Wiggins	Cessna T-50	2:40	3:14
Wis. Central ..	L-10A	5:25	4:06
	DC-3	4:46	6:27

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Technical News Digest

TECHNICAL LITERATURE

• **The most advanced supersonic wind tunnel** yet constructed in Canada is now being built by the National Research Council. Cross section of the tunnel where the test models will be mounted, is only 10 inches square but the tunnel is expected to simulate air flows up to 5,000 miles per hour. Nine nozzle boxes will be used to obtain a range of speeds from Mach 1.4 up.

• **A foreign repair station certificate**, the first to be issued in South America, has been awarded Panair do Brasil. Certificate, presented formally to Dr. Paulo Sampaio, president of Panair, will enable the company to perform maintenance on U. S. flag international carriers. Similar certificates have been awarded to BOAC, Royal Dutch Airlines, Swissair and Compania Mexicana de Aviacion.

• **An international conference** on the allocation of radio frequencies throughout the world was opened in Geneva on August 16. The Extraordinary Administrative Radio Conference, carrying out the work initially scheduled for the International Telecommunications Union at The Hague in September 1950, will allocate the various radio frequency bands to legitimate users including aeronautical, maritime, general broadcasting, etc. W. W. Butterworth, U. S. ambassador to Sweden, will be chairman of the U. S. delegation.

• **The Technical Standards Register**, an annual listing of all Technical Standard Orders adopted by CAA, is now available from the Civil Aeronautics Administration, Office of Aviation Information, Washington 25, D. C.

• **By careful selection and preparation** of mountaintop sites, "very satisfactory VOR (omni-range) performance can be obtained in mountainous terrain," according to CAA. Tests, conducted in the sixth and seventh CAA regions, indicated that best results were obtained by leveling off an area about 300-feet in diameter from the transmitting site. CAA plans to use some such sites as standard procedure.

• **Wider spacing** between pairs of slope line light fixtures near the ends of runways has proved to be an undesirable practice because the guidance provided by the lights deteriorates as a direct result. Tests have been conducted using 45 degree light mountings at the outer 2,000 feet and 30 degree mountings for the inner 1,000 feet. While such a system may yet be used to keep the runway overrun area free from obstructions for a 150-foot width, there are inherent disadvantages.

• **Initial flight of the Avro 707A** delta wing jet research plane has been made but no performance details released. Powered by a Derwent turbine engine, the 707A has a wing span of 34 feet 2 inches, overall length of 42 feet 9 inches and height of 11 feet 7 inches.

• **In order to permit private aircraft** engaged in civil defense activities to use 122.8 megacycles for related communications activities, the Federal Communications Commission has proposed that Part 9 be amended accordingly. At present this frequency is used for communications between private aircraft and aeronautical advisory stations.

• **The Argentine government** has extended an official invitation to the International Civil Aviation Organization to hold a combined regional air navigation meeting for South American and the South Atlantic Region in Buenos Aires. This meeting starts October 30th prior to a meeting of ICAO's Facilitation Division which starts November 12 in this same city.

• **Six miniaturized electronic units**, primarily for use in its line of military flight simulators, have been developed by Link Aviation, Inc. of Binghamton, N. Y. Units are: servo amplifier, summing amplifier, linear phase detector, variable frequency oscillator, audio amplifier and phase detector. Link notes that the miniaturized units are cheaper to produce, easier to maintain and provide improved signal reproduction.

• **A miniaturized piezoelectric accelerometer** which measures high-frequency vibrations directly and also checks the frequency response of vibration generators, has been developed by the National Bureau of Standards. Not primarily designed to sense aircraft accelerations, the unit is useful in calibrating vibration pick-ups, shake tables and low-frequency, noise-detecting devices.

• **Expansion of its South San Francisco maintenance base** will be started by United Air Lines this fall with the addition of 17,500 square feet to the existing hangar area, 60,000 square feet of warehouse area and 80,000 square feet engine overhaul shop space. Some 200 additional jobs will be provided for by the expansion programmed to handle the company's fleet of 40 Convair 340's scheduled for 1952 delivery.

FLEXON BELLOWS: Chicago Metal Hose Corp., 1316 S. Third Ave., Maywood, Ill. is circulating an 18-page catalog dealing with Flexon Bellows in a complete range of sizes and metals. Flexon Bellows are used in control devices, instrumentation, etc. Catalog CMH-113.

HEAT TREATING: Surface Combustion Corp., Toledo 1, Ohio has published an eight-page bulletin entitled "Surface Heating and Heat Treating Furnaces for Production. Includes coverage of aircraft applications. Bulletin SC-150.

SEALED CONNECTORS: Cannon Electric Development Co., 3209 Humboldt St., Los Angeles 31, Calif., is circulating a four-page bulletin, RS-1, describing its new line of "RS" hermetically-sealed plugs used on aircraft relays and other sealed components.

TANTALUM CAPACITORS: Fansteel Metallurgical Corp., North Chicago, Ill., has available a one-page bulletin, 6.531, covering a series of sub-miniature tantalum capacitors ranging from 30 mfd at 6 volts d-c to 3.5 mfd at 75 volts d-c.

KOLLSMAN INSTRUMENT CORP.: Standard Coil Products Co., Inc., has published a 24-page illustrated story on its new subsidiary Kollsman Instrument Corp., Elmhurst, Long Island, N. Y. Copies of the booklet are available from Kollsman.

MULTIPLE V-BELT DRIVES: Latest engineering data, opinion and research on multiple V-belt drives are contained in a 16-page manual of recommended "Engineering Standards for Multiple V-Belt Drives." It is available at \$1 per two copies from either Multiple V-Belt Drive Association, 7 West Madison St., Chicago 2, Ill. or The Rubber Manufacturers Association, Inc., 444 Madison Ave., New York 22, N. Y.

FATIGUE TESTERS: Vibration fatigue testers are described in a six-page folder now being circulated by All American Tool and Manufacturing Co., 1014 West Fullerton, Chicago 14, Ill.

DU PONT RESEARCH: A 30-page review of industrial research with particular emphasis on company research is available in "This is Du Pont—The story of Research" now available from E. I. Du Pont de Nemours & Company, Wilmington 98, Delaware.

COMBUSTION EFFICIENCY: A brief report on "Combustion Efficiency of Jet Engines" is contained in National Bureau of Standards Technical Report 1557, a three-page summary of related research by the Bureau. National Bureau of Standards, U. S. Department of Commerce, Washington 25, D. C.

BALL AND ROLLER BEARINGS: A 20-page American Standard on Tolerances for Ball and Roller Bearings, the second of a series of antifriction bearing standards, is now available from the American Standards Association, 70 East 45th St., New York 17, N. Y. at 75c each. Contains 15 tables specifying tolerances on bore, outside diameter, width, etc.

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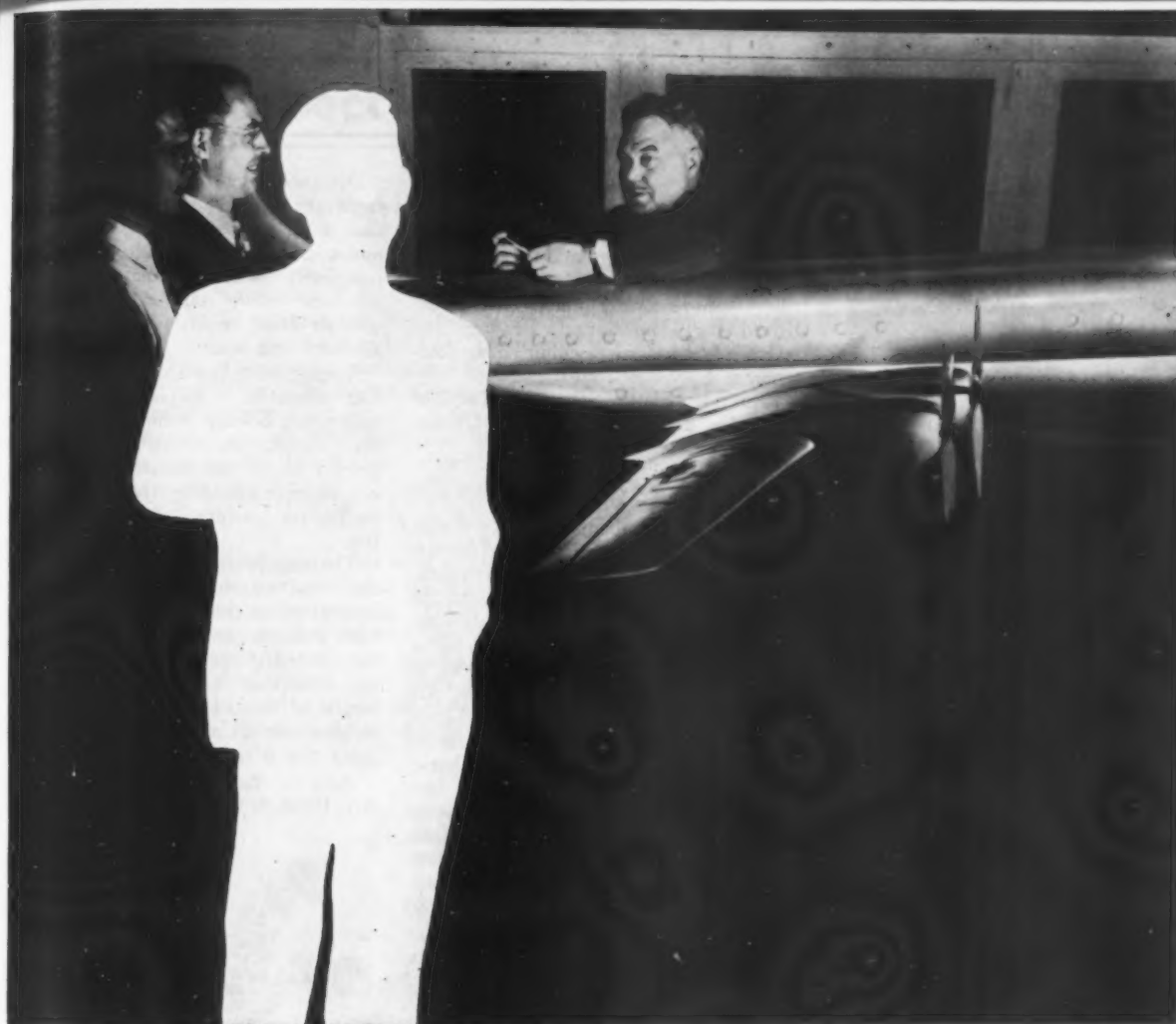
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Boeing's world-wide reputation for sound engineering achievement is founded on men. Boeing engineers and physicists are graduates of many universities and technical schools. They come from every state in the Union. Under inspiring leadership they have been welded into one of the most potent forces in any field of scientific advance.

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Boeing engineering team, there are other definite advantages:

- 1 The challenge of working on such vital programs as the B-47 and B-52 jet bombers, guided missiles and other revolutionary developments.
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- 3 The invigorating atmosphere of the Pacific Northwest—hunting, fishing, sailing, skiing, temperate climate all year around.
- 4 The availability of housing. Newcomers to Seattle are able to get accommodations—and that's unique in a great aircraft manufacturing center.
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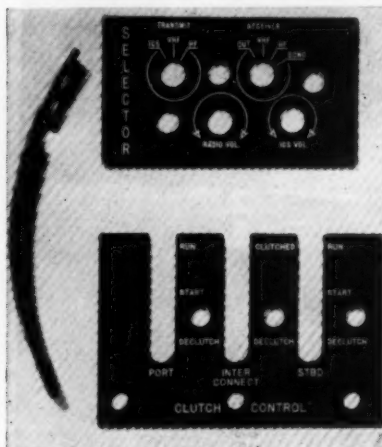
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DEPT. F-8
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Engineering opportunities at Boeing interest me. Please send me further information.

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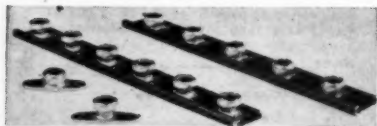
New Products



Edge Lighted Panels

Black-faced instrument and control panels with white lettering which lights up for optimum night visibility are now being made with Sierracin number 5005 non-crazing thermosetting plastic. Night lighting is provided by red light, transmitted from small red lights in the panel, carried throughout the inner core of the panel and escaping only through the translucent letters and markings. Meeting and exceeding AN specification AN-P-89, the Sierracin panels, the manufacturer states, will not craze in the presence of alcohol, lacquer thinner, Methyl Ethyl Ketone, standard commercial cleaners, aviation gasoline, or other commercial solvents. Furthermore, the integrally molded 5005 panels eliminate the possibility of delamination. Panel markings are produced by engraving through the black and white surfaces and slightly into the transparent inner core. Letters are then filled with Sierracin W7C translucent white plastic. Surface will withstand scratches from a phonograph needle bearing more than 1,000 gram load, an indication of its abrasion resistance.

Address: Sierra Products Company, 1632 E. Compton Blvd., Route 1, Compton, Calif.



Gang Channel Nut

New gang channel and anchor nuts recently introduced by the Elastic Stop Nut Corp. promise weight savings ranging from 25 to 30% while main-

taining the same strength. Manufactured in conformance with Specification AN-366, the ESNA unit saves weight in both the nut design and the associated plate. Supplied assembled in a 24S-T4 aluminum alloy channel, blue anodized for identification. Features the standard red elastic locking collar common to ESNA lock nuts.

Address: Elastic Stop Nut Corp. of America, 2330 Vauxhall Road, Union, N. J.

Bantam A. C. Motors

A series of bantam size, flange-mounted A. C. electric motors for use in aircraft, electronics and instrument applications has been announced by Hertner Electric Co. Basic design applicable for operation at 400 cycles or higher with models for frequencies as low as 10 cycles also available. Diameters of five basic types are 1-inch, 1 11/16 inches, 2 3/8 inches, 3 3/16 inches and 4 1/8 inches. Ratings up to one horsepower. Available for operation at constant or variable speed with fluctuating power supply, for constant or variable voltages up to 550 volts, 1, 2, or 3 phase. Choice of two, four, six or eight poles.

Address: Hertner Electric Co., 12690 Elmwood Ave., Cleveland 11, Ohio.



Fuel Pump Motor

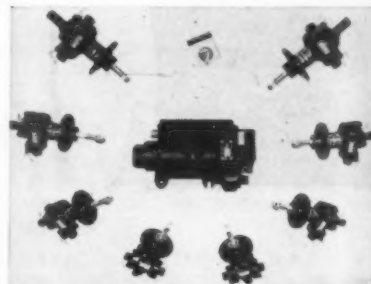
A new fuel pump motor for in-flight refueling is now being supplied to Boeing for USAF tanker planes. Its major task is powering a booster pump which moves a large volume of fuel at a high rate—600 gpm—from the fuel tanks to the tail boom at the rear. Equally important, however, is the fact that this motor, which must operate in the highly explosive atmosphere of high octane gasoline, has been explosion-proofed by means of specially designed flame arrestors installed at the air inlet and air outlet ventilating ducts of the motor.

Designed by Jack & Heintz, Inc., engineers, the motor is so constructed that if an explosion occurs within the motor chamber the resulting flame is completely confined to that area by the arrestors, while the explosive force, without flame, is dissipated through the arrestors and ducts.

Among other features of this 9.5 h.p. DC motor is a special housing that makes the booster pump integral with the motor, an armature conductor welded to the commutator, filtering to cut down radio interference and self-cooling for continuous duty up to 25,000 feet.

Thermal protection from peak specified load to locked rotor also is incorporated in this motor. Motivated by both ambient temperature and current, the protector operates a motor contactor, shielding the motor against five hours of locked rotor and its 2500 amperes, or against loads exceeding ultimate trip setting.

Address: Jack & Heintz, Inc., Dept. AA, 17600 Broadway, Cleveland 1, Ohio.



Power Units

A new series of power units and screwjacks incorporating specially designed quick-disconnects for rapid servicing is now in production by Lear, Inc. The new unit, designated the Model 150, is being used to operate the icing screen retraction systems used with jet powerplants. In this particular application eight screwjacks, a model 150-power unit and flexible shafting are used. Each screwjack uses an adjustable slipping clutch to enable the rest of the units to operate even if one of the jacks should fail due to jamming, etc. Designed for operation in any system requiring either 27 volt d.c. or 400 cycle a.c. reversible motors. The entire system as used in the jet engine screen retraction system weighs less than 13 pounds.

Address: Lear, Inc., 110 Ionia Ave., N.W., Grand Rapids 2, Mich.

Extra Section

By William D. Perreault



THIS YEAR they'll carry some 20 billion passengers 500 million miles. And from past records, we can expect a safe operation. With 232,500 units in operation during 1951 and rates of climb up to 1200 feet per minute, the nation's elevators are certainly making a record for themselves. Sounds like an impressive market and the elevator people intend to keep it cornered. According to "Steel Horizons," published by the Allegheny Ludlum Steel Corp., attention has been focused on "human engineering," the study of psychology and riding habits of the millions of elevator passengers, and this "human factor" has created far-reaching changes in design, appearance and comfort of modern elevators. Sounds familiar.

And "TIME" magazine has some interesting comments on another medium of transportation, the train. In discussing the trials and tribulations of the Pennsylvania Railroad, "TIME" reported that the average passenger car in use on that line was over 30 years old, the freight cars even older. We doubt that this is a representative age for railroad cars in the U. S. as a whole but it does seem that when airline equipment stabilizes to a point where a 30-year-old piece of equipment can be used on competitive routes there should be money in the business.

This interesting item appeared in CAA's Aeronautical Center "Beacon" under the heading "The One Way to an Engineer's Heart." We thought you might find it interesting.

*Verily I say unto you, marry not an engineer
For an engineer is a strange being, and is possessed of many evils.
Yea, he speaketh in parables which he calleth a formula,
And he wieldeth a big stick which he calleth a slide rule,
And he hath only one bible, a handbook.
He thinketh only in terms of stress and strains, and without end of thermodynamics.
He sheweth always a serious aspect, and picketh his seat in a car by the springs
therein and not the damsel.
He does not know a waterfall, except by its horsepower,
Nor a sunset except that he must turn on a light,
Nor a damsel except by her live weight.
Always he carrieth his books with him, and he entertaineth his sweetheart with
steam tables.
Verily, though his sweetheart expecteth chocolates when he calleth,
She openeth the package but to disclose samples of iron ore.
When he kisseth he only tests the viscosity of her lips
For in his eyes there shineth a far away look that is neither lover nor longing—
rather a vain attempt to recall a formula.
There is but one way to his heart, and that is Eta Kappa Nu.
And when his damsel writeth of love and signeth with crosses he taketh these
symbols not for kisses, but for unknown quantities.
Even as a boy he pulleth girl's hair to test its elasticity.
For he counteth the vibrations of her heartstrings, and he seeketh ever to pursue his
scientific investigations:
Even his own heart flutterings he counteth as a vision of beauty, and enscribeth a
formula.
And his marriage is a simultaneous equation involving two unknowns and yielding
diverse results.*

We'd like to reprint in full "The Strange Case of the Seven-Sided Post Hole" as an object lesson for the entire aviation industry but if we did we'd simply be duplicating the efforts of the American Standards Association. This 42-page cartoon type booklet presents a strong case for standardization in any industry in a fashion you won't soon forget. American Standards Association, 70 East 45th Street, New York 17, New York.

Do you know:

What cost items are included in direct flying costs?

How much does a minute of ground holding time cost an airline?

What sections of an airline should be held responsible for maintenance irregularities?

What are fundamental requirements for passenger check-in procedures?

*You can find out by reading
AIRLINE OPERATIONS,
R. Dixon Speas's comprehensive book on airline organization, equipment, procedures, problems, and economies.*

Available, at \$5 per copy,
by writing to
**AMERICAN AVIATION
PUBLICATIONS**
1025 Vermont Ave. N. W.
Washington 5, D. C.



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Comfort
line!**



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AIRLINE SEATS...

are serving passengers with the best of seating comfort on 14 major airlines... and airline users know TECO seats are the best in "solid comfort" for their passengers because beneath the suave lines and finish of TECO seats is the lightest, strongest, Chrome-Moly steel structure and fool-proof mechanism giving longest maintenance-free service!

Write for interesting TECO catalog.

**TRANSPORT EQUIPMENT CO.
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One Name Alone

Links the Hearts of two mighty continents

In all three American Languages,
English, Spanish and Portuguese, there is one
name that needs no translation . . .

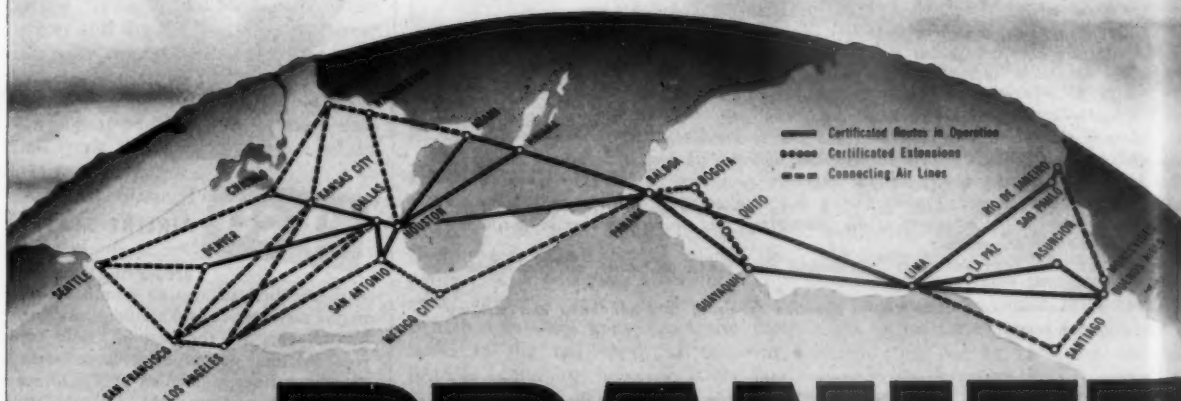
In eight Latin American countries, and, of course,
in the United States, there is one name that stands

for top-flight air travel . . . always! And one

airline, only one, flies from the heart of the

United States to and into the

heart of Latin America . . .



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Jet Transports That Have Flown

(As presented in paper by R. Dixon Speas before Institute of the Aeronautical Sciences, June 27-28, 1951)

Country	Aircraft	Power plant	No. Type (1)	Takeoff Thrust or HP	Takeoff Weight Pounds	Landing Weight Pounds	Empty Operating Weight (2) Pounds	Span	Length	Height	Wing Area Sq. Ft.	Aspect Ratio	Cruising Altitude, Feet	True Air Speed, MPH
U. S.	Chase KC-123A	General Electric J-47	4	TJ 5200 lbs.	NA	NA	NA	110' 0"	77' 1"	32' 8"	1223	9.89	NA	NA
U. S.	Convair Turboliner	Allison T-38	2	TP 2750 HP	45,000	42,875	28,000	91' 9"	74' 8"	26' 11"	817	10.0	25,000	350
Canada	AVRO Jetliner I	Rolls Royce "Derwent"	4	TJ 3700 lbs.	65,000	55,000	40,000	98' 1"	82' 9"	27' 2"	1157	8.31	30,000	425
Canada	AVRO Jetliner II	Allison J-33	4	TJ 5400 lbs. (WI)	80,000	65,000	41,000	98' 1"	84' 5"	27' 2"	1157	8.31	35,000	460
France	Sud-Quest So-30	Rolls Royce "Nene"	2	TJ 5000 lbs.	37,500	NA	NA	84' 7"	61' -	NA	NA	NA	33,000	465*
England	Armstrong Whitworth Apollo	Armstrong Siddeley "Mamba"	4	1320 HP + 405 lbs.	45,000	43,000	28,500	92' 0"	71' 6"	26' 0"	986	8.58	20,000	275
England	AVRO Ashton	Rolls Royce "Nene"	4	TJ 5000 lbs.	80,000	NA	42,000	120' 0"	85' 3"	20' 11"	1420	NA	.....	.....
England	DeHavilland Comet I	DeHavilland "Ghost"	4	TJ 5000 lbs.	105,000	80,000	NA	115' 0"	93' 0"	28' 5"	2015	NA	40,000	490
England	DeHavilland Comet II	Rolls Royce "Avon"	4	TP 6000 lbs. +	NA	NA	NA	115' 0"	93' 0"	28' 5"	2015	NA	.....	.....
England	Handley Page Hermes-5	Bristol "Theseus"	4	TP 2820 HP	90,000	75,000	54,000	113' 0"	96' 10"	29' 11"	1408	9.08	20,000	350
England	Handley Page Marathon-2	Armstrong Siddeley "Mamba"	2	TP + 405 lbs.	18,000	18,000	11,000	65' 0"	52' 1"	14' 1"	498	NA	5-20,000	250
England	Vickers Viscount	Rolls Royce "Dart"	4	TP + 295 lbs.	52,500	49,800	33,200	94' 0"	81' 2"	26' 9"	963	9.17	20,000	275
England	Vickers 618	Rolls Royce "Nene"	2	TJ 5,000 lbs.	33,500	32,500	22,000	89' 3"	65' 2"	19' 6"	882	9.0	.....	.....
England	Vickers 663	Rolls Royce "Tay"	2	TJ 6,000 lbs. +	NA	NA	NA	89' 0"	74' 6"	26' 3"	NA	NA	.....	.....

(1) TJ: Turbo-Jet; TP: Turbo-Prop.

(2) Includes everything except Fuel and Payload.

(WI) Water Injection.

* Maximum.

First Ceramic Coated Parts Orders for Ryan

First volume production contracts for ceramic coated exhaust systems have been announced by Ryan Aeronautical Co. Some 600 sets of ceramic coated exhaust units have been ordered for use with the Pratt & Whitney engines in the Convair 340's, and Boeing has ordered this unit for all B-50's and C-97 Stratofreights now in production.

Boeing decided to use ceramics in the Stratofreights after 1,800 hours of service testing on a Pan American World Airways 377 in the Pacific. In this plane, only the header sections of the exhaust systems were coated, some only on the inside, and some inside and out. Examination showed high protective qualities.

As uncoated header assemblies are removed from the stratocruisers for routine maintenance, they are being sent to Ryan in San Diego for incorporation of the ceramic coating and are then returned to the airlines for reinstallation. Ryan, which pioneered the system, also will inspect engines already equipped with ceramic-coated headers as they are changed for overhaul.

To obtain further experience with ceramic coatings, a complete collector ring assembly and header assemblies were coated both interior and exterior by Ryan and installed on a Pan American Pacific division airplane for service evaluation. This system has accumulated 800 hours to date.

Newly designed "Siamese" ejector stack systems, developed by Convair and Ryan engineers, based on experience with P & W R-2800 engines, will be completely ceramic-coated, inside and out, as they are installed in American Airlines' entire fleet of 79 Convair 240's to replace the old "Triamese" systems.

AA Stack Tests

In "Siamese" ejector stacks valve overlap conditions are minimized, thus reducing the back pressure. Under the present "Triamese" system, two front cylinders and one rear cylinder, or two rear cylinders and one front cylinder are picked up in each weld assembly.

In the "Siamese" stacks, each section picks up only two exhaust ports. Each side of the engine has five major stack assemblies instead of three as in the "Triamese" system.

American Airlines ran tests on the "Siamese" type stacks along with a

nacelle modification in which two more cowl flaps were attached to the bottom of the nacelle to provide additional cooling. These tests indicated an increase of 50 brake horse power wet on takeoff, of 20 brake horse power at high blower cruise and of 25 brake horse power at lower blower cruise. AAL will include the added cowl flaps in the 240 modification program.

Pan American also has ordered the new fully ceramic-coated Ryan "Siamese" exhausts for its Convair 240's and Western Air Lines will do the same thing when it converts to CB16 engines for 240 power. The "Siamese" stacks ceramic-coated will be used on the new Convair 340's. The 340's also will be equipped with four cowl flaps to provide additional cooling for the CB16 engines.

American Airlines is service testing two engine sets of the present "Triamese" exhaust systems, fully ceramic-coated, on one of its transports.

Ryan also has received experimental orders from Pratt & Whitney to manufacture exhaust systems, fully ceramic-coated, for its latest R-4360 series engines, using 19-9DL stainless steel or 310 modified stainless steel. These engines are used in Boeing C-97's and B-50's and Convair B-36's.

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New Services

National Airlines has been authorized by CAB to operate, on an experimental basis for one year, daylight coach service with DC-6's between New York and Miami. It will be the first regular daylight coach service on the Eastern seaboard . . .

Pan American World Airways and United Air Lines will introduce a west coast-Honolulu round-trip excursion fare, effective from Oct. 15 to Dec. 20, if CAB approves. Fare will be \$216 against regular \$288, applying to trips completed within 16 days or less. The rate, a 33% reduction, will apply on standard service of both carriers . . .

United Air Lines this month put its DC-6B's into service, following agreement by the company's pilots to fly the planes while negotiations are being conducted on a new employment contract . . . on August 16 United inaugurated daily non-stop service between Washington, D. C., and Denver with DC-6 aircraft with flights continuing non-stop to San Francisco, giving United a total of five flights daily from Washington to the west coast.

Braniff Airways is now operating all of its international flights through the Miami gateway. Restrictions on Braniff's newly awarded Miami operations prohibit local service between Miami and Havana or between Dallas/Houston and Miami . . .

American Airlines on Aug. 24 will add a fifth daily non-stop flight between Washington and Chicago. New flight, which continues non-stop Chicago-Los Angeles, increases AA's Washington-west coast daily flights to 11 . . . Pan American has added four more round-trip tourist service flights New York-San Juan, bringing total service between the points to 146 flights weekly, of which 87 are tourist . . .

Capital Airlines started service at Hickory, N. C., on Aug. 15 . . . Pioneer Air Lines' service to Bryan, Tex., has been transferred from Bryan Air Force Base to Easterwood Airport . . . Trans-Canada Air Lines has transferred Seattle service from King County Airport to Seattle-Tacoma International Airport . . .

Alaska Airlines' recently-authorized service between Fairbanks, Alaska, and co-terminals Portland and Seattle was scheduled to open in mid-August . . . Swissair put Douglas DC-6B's into operation New York-Geneva on Aug. 19, three flights weekly leaving New York on Wednesdays, Fridays and Sundays.



A NEW PUSH-BUTTON TICKETING MACHINE is shown here being tested by Capital Airlines as a potential means of speeding up service and reducing passenger waiting time at airport ticket counters.

Capital Tries Push-Button Ticketing

Theater-type vending machine shows promise of relieving congestion at airport counters.

CAPITAL AIRLINES this month initiated an experiment aimed at one of the major sources of passenger complaints—the pre-departure bottleneck frequently encountered at major airport ticket counters.

The experiment is simply the use of a theater box office type machine for push-button issuance of tickets.

Manufactured by the General Register Corp., the machine is a standard type used in many theaters.

In the test installation at Washington National Airport, Capital uses one way and round trip tickets between Washington and the five cities generating about 70% of Capital's ticket sales at that station—Norfolk, Cleveland, Detroit, Pittsburgh and Chicago.

The customer states his destination, and if it is one of those five cities, the agent pushes a button and out comes the ticket. He then has only to write in the flight number and departure time and the ticketing is done—in 25 to 30 seconds less than the usual method requires.

The suggestion of the ticketing machine came from Robert P. Wright, assistant treasurer of the company, who

got the idea from a movie theater box office.

Contrary to popular belief, most airline tickets nowadays are sold at airports rather than at city ticket offices. Passengers making reservations by phone naturally prefer to pick up their tickets at the airport before plane departure. This practice has been particularly prevalent since the airlines abolished the ticketing time limit.

And with airline traffic booming as it is this year, this has resulted in long queues of passengers waiting to be ticketed at major airports during peak hours. Capital Airlines hopes that the automatic ticketing idea will greatly reduce these waiting lines, or at least substantially reduce the average waiting time.

What the machines will cost is not determinable at present. In quantity, they will cost much less than if only a dozen are ordered. What Capital would like to do, if the results of the test at Washington indicate clearly that the project would be feasible at all major traffic points, is to interest all or most of the other airlines in making installations at their major stations.

Sales Promotion

United Air Lines named August as "Air Cargo Month," in a resumption of this annual competition. Slogan for the month is "Every Bit in Every Pit." Winning stations will be determined on the basis of quota accomplishment and manpower utilization (pounds loaded per man).

British Overseas Airways and Qantas Empire Airways are distributing literature calling attention to the fact that passengers on the Australia-London "Kangaroo" service can go on conducted tours of Singapore, Cairo and Rome at no extra cost . . .

Continental Air Lines conducted a "flying wedge" sales campaign in Houston the week of August 6 by sending in 10 seasoned salesmen, who concentrated on acquainting Houston with the new Continental-American through Houston-Los Angeles interchange service.

Passenger Service

Air France is limiting passenger capacity of its New York-Paris Constellations to 34 instead of usual 44, to provide more room and comfort for passengers. Company is also extending passenger service features of luxury "Parisian" flights to all nine of its weekly New York-Paris services . . .

TWA has added a special group of hostesses, all linguists, to serve at New York International Airport and Boston's Logan International Airport. They're serving as translators in assisting non-English speaking passengers through immigration and customs. All speak at least four languages. Their uniforms are similar to those of the hostesses aboard the planes . . .

Airline People

ADMINISTRATIVE

Frank C. Hobbs advanced to mgr. of forecasts for TWA, succeeding W. A. McCurdy. Latter resigned to join controllers' staff of Ford Motor Co.

G. O. Eckley promoted from asst. comptroller of of United to auditor, replacing K. J. McBride, resigned. John A. Tockstein becomes asst. comptroller.

Frederick M. Tyvell named personnel dir. of Pacific Northern.

Thomas J. Valance and Terence Scantlebury named sr. job analysts



Eckley

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Spain	Sweden
Switzerland	Turkey

and many more in Asia & Africa

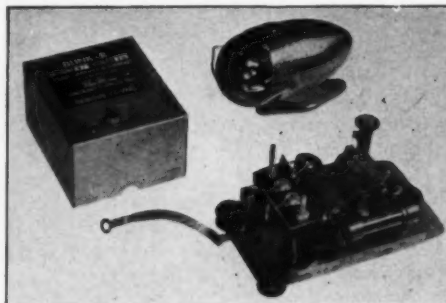
Overnight-trip to one European nation or "Grand Tour" of the Continent—the choice is SAS! The "Route of the Vikings" covers all Europe from Portugal to Finland . . . from Turkey to the Arctic Circle. Passengers leave New York any day . . . cruise by luxurious DC-6, enjoy soft sleeper berths . . . reach Europe in 12½ hours. Matchless SAS service and courtesy all the way!

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Cleveland — Detroit — San Francisco — Washington

NEW the Van Dusen BLINK-R NAVIGATION LIGHT BLINKER



TESTED • APPROVED and ACCEPTED

AT NIGHT, in the air your navigation lights can easily be confused with stars above or lights below. Under some conditions you might as well have no lights at all.

That's why every plane should have the new, lightweight, compact Van Dusen BLINK-R which weighs only 13 ounces and measures 3" x 3½" x 2". Here's an electronically-controlled, precision-built light flasher (45 to 70 cycles per min.) which will give years of service. It's completely shielded to prevent radio interference and leaves lights "steady-on" in event of any malfunction.

tion. Very easily installed. 12 or 24 volt models.

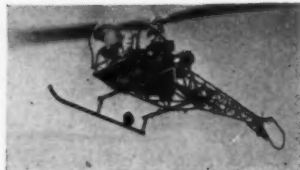
The Van Dusen BLINK-R has been exhaustively tested and proven thoroughly reliable. Write for further details.

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BLINK-R Model BR G-1 has been selected as standard on the Army's new Cassia L-19 observation reconnaissance airplane and the Bell H-130 Helicopter.



in personnel dept. of American.

Fritz Besancon promoted to KLM executive v.p. He has been KLM's v.p. operations at Schiphol Airport, Amsterdam and was formerly attached to the line's technical staff in Hollywood.

Harold G. Biermann, attorney and labor relations specialist, has joined the staff of Robert J. Wilson, vice president of Capital Airlines. He will assist in contract negotiations between management and the labor unions.

E. H. Silingsby advanced from chief acct. to comptroller of Southwest.

John C. Henry retired July 31 at his own request as public relations dir. of British European Airways. William Simpson becomes acting pub. rel. officer.

TRAFFIC & SALES

Roswell Angier named central regional mgr.-cargo sales for American.

Ray Costello promoted to genl. traffic mgr. for Southwest.

Dan W. Hutchins named d.s.m. for Pacific Northern at Portland, Ore.

Harry S. White, a director of Southwest Airways and a director of the Aeronautical Training Society, elected v.p.-traffic for SWA.



Hutchins

Clifford R. Kamprath and Marvin L. Heldt named district traffic and sales managers for Continental at Tulsa and Oklahoma City respectively.

H. B. Main named by Canadian Pacific to new position of general traffic manager.

William A. Fleming named Western Air Lines' publications manager.

D. J. Herring is now director of tariffs and schedules for Canadian Pacific.

John E. Dowling, former FBI agent, is now United's eastern regional claims manager.

Gene L. Robinson named ass't to American's southern regional SRT in Dallas.

William A. Schrader transferred from Pan American's Atlantic Division to the System offices as ass't to Vice President John C. Leslie. Schrader has been assistant to vice president Harold B. Harris.

Dhan Mukerji promoted to Atlantic Division traffic and sales manager by Pan American.

A. B. Krueger appointed d.s.m. for TWA's newly created Casablanca district.

Henry W. Beardsley named Pan American regional traffic and sales manager for western Europe and L. Peter Cornwall assumes similar position for the Middle East and India.

OPERATIONS-MAINTENANCE

Violet Corrington appointed flight service superintendent in charge of all pursers and hostesses for Panagra.

William C. Krieg named labor relations counselor, maintenance and supply, for American Airlines in New York.

A. J. Galgano appointed supervisor of P&G service for American at Newark.



As they say in Rochester:

"Let us tell you about our operation"

● At Rochester, Minn., one of the great medical capitals of the world, operations (medical variety) are naturally an interesting topic of conversation. Another kind of Rochester operation that you hear talked about is the world-famous air ambulance service operated by Gopher

Aviation, Inc. In addition to Standard Skyway Service, Gopher Aviation offers a number of other fine services. Gopher's ambulance ships

have specially designed stretchers for aerial use, oxygen equipment for passengers, meal services. Trained nurses are available as needed. In addition, Gopher officials are especially proud of their maintenance shops which handle more than 200

private aircraft from all over the Middle West. "One of the best things we have to offer our many customers," says Gopher Aviation boss, Art Hoffman, "is *Standard Skyway Service*. In this end of the operation, as throughout, we must have quality products, so we choose Standard."



STANDARD SKYWAY SERVICE

Everywhere in the Midwest

STANDARD Aviation Gasolines • STANDARD Aviation Engine Oils • STANDARD Aviation Lubricants and Hydraulic Oils • QUAKER STATE Aero Engine Oils

STANDARD OIL COMPANY (INDIANA)

Alaskan Airline Revenues & Expenses for 1950

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXCESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
Alaska	\$ 3,714,061	\$ 528,523	\$ 743,359	\$ 94,014	\$ 13,755	\$ 5,577	\$ 2,263,757	\$ 4,076,697	\$ 2,613,198	\$ 1,463,500	\$ -362,137
Alaska Coastal	642,162	356,635	189,337	30,948	16,428	5,863	33,780	676,051	314,114	361,937	-33,899
Byers*	32,558	11,438	12,085	.....	6,341	507	2,171	35,877	17,585	18,292	-3,318
Cordova	151,185	40,500	65,943**	.....	6,890	914	34,932	141,516	68,122	73,395	9,669
Ellis	531,194	296,996	153,866	41,605	.....	3,581	34,107	534,137	208,276	325,861	-4,943
North. Consol.	1,134,715	374,220	401,540	3,781	163,995	3,619	179,048	1,265,890	711,970	553,920	-131,174
Pacific North. Revere***	1,623,576	792,345	502,537	.....	114,998	12,631	194,891	1,602,433	765,154	837,279	21,242
Wien Alaska	1,043,569	238,791	242,612	.....	37,313	1,191	42,783	888,977	279,822	209,155	76,217
TOTALS	9,438,314	2,846,499	2,939,014	170,348	468,819	37,959	2,876,552	9,700,914	5,489,109	4,211,807	-262,600

* Figures are from July, 1950 only. Formerly operated under the name Lon Brennan Air Service.
 ** Includes \$2,686 mail pay for year 1949 per CAB rate order No. E-3781 dated January 5, 1950, and No. E-4141 dated May 10, 1950.
 *** Figures are preliminary.

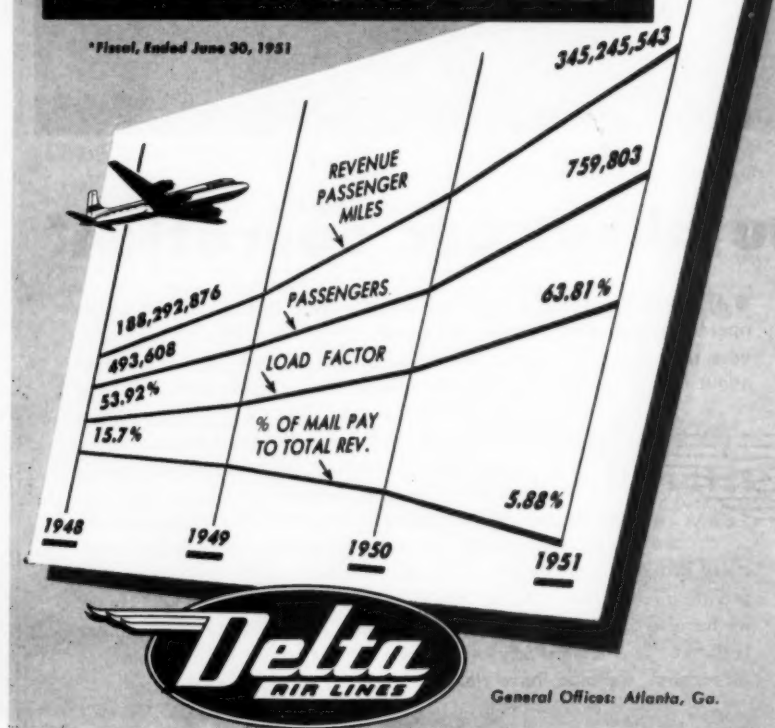
Alaskan Airline Balance Sheet as of December 31, 1950

AIRLINES	TOTAL ASSETS	CURRENT ASSETS	INVESTMENTS & SPECIAL FUNDS	OPERATING PROP. & EQUIPMENT	DEFERRED CHARGES	CURRENT LIABILITIES	LONG-TERM DEBT	DEFERRED CREDITS	OPERATING RESERVES	CAPITAL STOCK	SURPLUS
Alaska	\$ 2,445,001	\$ 1,208,462	\$ 2,032	\$ 1,144,248	\$ 90,299	\$ 1,236,048	\$ 36,562	\$ 11,710	\$ 216,090	\$ 605,033	\$ 339,558
Alas. Coastal	460,791	138,403	10,180	298,353	8,651	83,133	240,000	7,969	33,623	144,285	-48,219
Byers	66,529	38,229	.....	21,370	3,321	21,339	16,382	.....	.....	19,408	9,399
Cordova	103,008	39,916	.....	49,286	13,806	69,649	13,400	.....	336	15,850	3,776
Ellis	377,401	106,943	.....	238,322	8,261	53,349	56,424	.....	.....	61,995	206,032
North. Consol.	716,007	303,320	77,039	248,872	34,920	554,676	124,091	17,838	.....	357,735	-338,333
Pac. Northern Revere	838,058	496,328	.....	188,790	42,223	133,763	.....	15,388	.....	666,444	22,463
Wien Alaska	355,716	123,136	.....	224,323	6,851	122,876	.....	3,072	54,558	142,864	32,367
TOTALS	5,845,948	2,710,067	90,946	2,622,236	226,032	2,533,218	486,859	55,977	313,302	2,120,294	336,298

* Figures are preliminary.

It's Been Quite A Year

* Fiscal, Ended June 30, 1951



CAB Calendar

- Aug. 20—(Docket 3842) Hearing in New England Air Express Individual Exemption Case. 10 a. m., Room E-210, Temp. Bldg. 5, Washington. Examiner James S. Keith. Postponed from July 31.
- Aug. 20—(Docket 4762 et al.) Hearing in Piedmont Aviation Certificate Renewal Case. 10 a. m., State Room, Robert E. Lee Hotel, 5th & Cherry Streets, Winston-Salem, N. C. Examiner Ferdinand D. Moran. (Hearing will reconvene in Washington, September 10).
- Aug. 22—(Docket 3941) Hearing in Robin Airlines Individual Exemption Case. Tentative. Examiner Curtis C. Henderson. Postponed from July 6.
- Aug. 27—(Docket 4902) Hearing in CAB investigation of Consolidated Flower Shipments, Inc.-Bay Area. Tentative. Examiner Richard A. Walsh.
- Aug. 29—(Docket 3901) Hearing in Caribbean American Lines Individual Exemption Case. Tentative. Examiner J. Earl Cox.
- Sept. 10—(Docket 4835) Hearing in Capital Airlines Chicago-Milwaukee-Twin Cities All-Cargo Route Authorization. Tentative. Examiner Curtis C. Henderson.
- Sept. 10—(Docket 3910) Hearing in Trans-National Airlines Individual Exemption Case. Tentative. Examiner Barron Fredericks.
- Sept. 10—(Docket 3926) Hearing in Southern Air Transport Individual Exemption Case. Tentative. Examiner F. Merritt Ruhlen.

Ignition Headquarters



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Airline Commentary

By Eric Bramley

IN these days when you hear so many gripes about passenger service, it's nice to have a story come along showing the other side of the picture. A couple of weeks ago, **Bob Love**, president of All American Airways, received a long distance call from Atlanta asking him to make every effort to have a "wait listed" passenger boarded on AAA's flight to Salisbury, Md., where her father was critically ill. Unable to get space out of Atlanta, the woman was proceeding to Washington by train. Bob not only got her a seat on the AAA flight, but met her at the railroad station and drove her to the airport, where the flight had been held 10 minutes. Our hat's off to a busy president who took the time to help a passenger.

Bert Holloway, Lockheed Aircraft Corporation's director of advertising, publicity and sales promotion, wrote a letter to this office and we have stolen a sentence out of it which we think is a fine description of current times. He says that if people forget to say thanks these days, "I'm sure you understand that the pressures of the times have almost extinguished the little candles of courtesy." Very nicely put, Bert, and only too true.

Now hear the sad story of two airline officials. We'll title it "The Hazards of Aviation."

Johnny Sutton, popular passenger service superintendent of Delta Air Lines, broke his leg several weeks ago while dashing in from the backyard to answer the telephone. He was getting around on crutches, healing nicely. Then, a few days ago, while descending the steps of a stewardess school, he slipped and fractured a shoulder bone.

Johnny Carver, vice president and secretary of Robinson Airlines, was in Washington to attend a Civil Aeronautics Board hearing, so bright and early in the morning he proceeded to the hearing room, which was located in one of the government's many temporary buildings. There was no one in the room, and the windows were wide open despite the fact that the air conditioning was on.

Doing his good deed for the day, he started to close the windows, lost his balance and fell. Result was three stitches in his posterior. It goes to show that you never know what will happen when you visit CAB, but he should be consoled by the fact that some people have come out of the Board worse off than that.

(Ironical part is that CAB had called the hearing off at the last minute, and notifications hadn't reached everybody—including John).

Dick Horstmyer, cargo service supervisor of TWA, was telling us a story that happened some time ago, but it's still good. The moral could be that the sales department never gives up.

When TWA was operating all-cargo DC-4's across the Atlantic, Kansas City headquarters received a query from a TWA salesman abroad as to whether it was okay to accept a Bengal elephant for shipment. Kansas City contacted the local zoo for information, and learned that the elephant would be too large to go through the door. The query was answered in the negative.

Some time later, the answerer of the query and the salesman met. The latter was still considerably miffed that TWA had refused to handle the shipment. "But ANYONE should know that a Bengal elephant is too big to get into a DC-4," said the Kansas City man, showing off his zoo-acquired knowledge.

"Yes," replied the persistent salesman, "but what you DIDN'T know was that this particular elephant was trained to walk on his knees. We could have loaded him easily!"



A PASSENGER-ATTRACTING SIGNPOST like this one at its Phoenix airport station is what Frontier Airlines terms an effective way of keeping unfamiliar passengers from unintentionally overlooking its local service to nearby towns—particularly deplaning trunkline passengers as they arrive from distant points. Frontier Stewardess Irene Hill is adjusting the signpost while her partner Eleanor Caygill holds the ladder.

Wiggins Route May Go to Other Lines

The local service route of E. W. Wiggins Airways may be parcelled to other carriers as a result of a new dismemberment case initiated by the Civil Aeronautics Board.

CAB action, coming one day prior to prehearing conference in Wiggins' certificate renewal case, was seen as indication that the Board no longer favors the Wiggins-Robinson merger, which two months ago it urged the parties to effect.

In announcing the investigation, CAB indicated that Northeast Airlines or "other certificated carriers" might be likely recipients of all or portions of the local service line's route.

Reunion of Pioneers

Early pilots who flew the air mail from the beginning of the service until July 1, 1927 when contract carriers took over the carriage will gather at the Hotel Newhouse, Salt Lake City, on Oct. 1 for a meeting of the western chapter of the Air Mail Pioneers. Among those to attend are Capt. Harry Huking, now a senior pilot for United Air Lines; H. T. "Slim" Lewis, now ranching in Wyoming; W. E. "Ed" Kline, now a CAA regional administrator at Honolulu, and D. B. Colyer, now retired to farming in Indiana.

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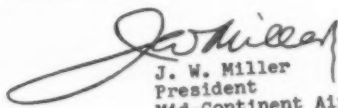


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President
Mid-Continent Airlines, Inc.



IN THE AIR--IT'S
CONVAIR

Consolidated Vultee Aircraft Corporation

San Diego, California

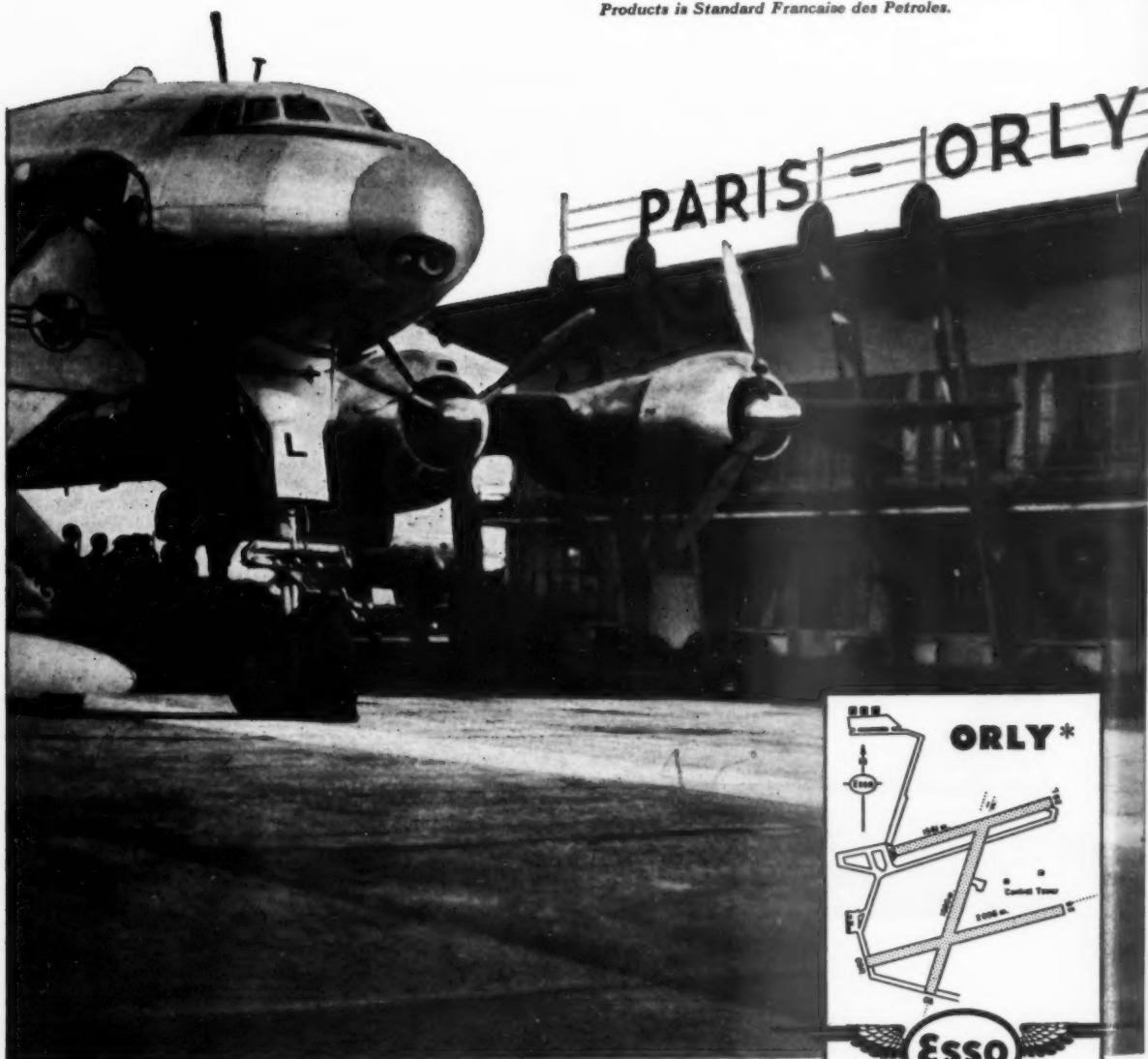
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Airport News Digest

Federal-aid airport grant offers totaling \$7,682,342 were made by the Civil Aeronautics Administration during the last two weeks of June to 95 communities, as follows, with airport classes in parentheses:

Alabama: Guntersville Municipal (1), \$18,312; Huntsville (3), \$46,560; Roanoke Mun. (1), \$22,000; Sylacauga Mun. (1), \$10,000.

California: Shasta Sky Ranch, Fall River Mills (1), \$8,156; Imperial County Airport (3), \$58,471; Los Angeles International (7), \$577,392; Ontario Inter. (5), \$11,679; Ukiah (3), \$2,500.

Florida: Bartow Mun. (4), \$18,000; Meacham Field, Key West (3), \$62,500; Marianna Mun. (4), \$10,000; Miami Inter. (7), \$320,000; Sarasota-Bradenton (4), \$28,185.

Georgia: Athens Mun. (3), \$13,000; Fulton Co. Airport, Atlanta (3), \$179,756; Muscogee County, Columbus (3), \$263,605 (two offers).

Indiana: Gary Mun. (3), \$82,000; Weir Cook Mun., Indianapolis (4), \$489,188; Richmond Mun. (4), \$7,000.

Illinois: Univ. of Ill. Airport, Champaign (4), \$60,000; Merrill Meigs Field, Chicago (2), \$38,500; Midway, Chicago (5), \$200,000; O'Hara Field, Chicago (6), \$300,000.

Kansas: Chanute Mun. (3), \$46,000; Cottonwood-Strong Airport (1), \$5,200; Fairfax Mun., Kansas City (5), \$190,500; Manhattan Mun. (2), \$6,100.

Kentucky: London-Corbin Mun. (3), \$15,000; Barkley Field, Paducah (3), \$37,500.

Louisiana: Lake Charles (5), \$40,000; Welsh (1), \$10,138.

Maine: Portland (3), \$43,000.

Maryland: Frederick Mun. (3), \$74,789.

Massachusetts: Worcester Mun. (4), \$146,118; Detroit-Wayne Major (7), \$135,264; Bishop Field, Flint (4), \$200,000; Gogebic County, Ironwood (3), \$13,500; Capitol City, Lansing (4), \$53,000; Tri-City, Saginaw-Bay City (4), \$11,000.

Mississippi: Douglas Field, Greenville (3), \$6,184; Laurel Mun. (4), \$16,100; Barrier Field, Yazoo City (2), \$6,464.

Missouri: Columbia Mun. (4), \$18,200; Mexico Mun. (2), \$15,000; Earl Fields Mun., Poplar Bluffs (3), \$60,000.

Nebraska: Bassett Mun. (1), \$9,610; Bloomfield Mun. (1), \$13,500; Perkins Mun., Chambers (1), \$6,500; Crete Mun. (1), \$14,900; Curtis Mun. (2), \$4,200; David City Mun. (1), \$14,100; Humboldt Mun. (1), \$14,100; Imperial Mun. (3), \$17,400; Lexington Mun. (3), \$8,850; Omaha Mun. (6), \$48,250; Sidney Mun. (3), \$25,700; York Mun. (2), \$23,380.

New Hampshire: Laconia (2), \$7,250; Lebanon Mun. (3), \$20,000.

New Mexico: Grants Mun. (2), \$80,750.

New York: Albany Mun. (4), \$74,800; Buffalo Mun. (4), \$325,000; MacArthur Airport, Islip (4), \$30,000.

North Carolina: Douglas Field, Charlotte (4), \$294,000; Smith Reynolds Mun., Winston-Salem (5), \$25,700 (two offers).

North Dakota: Lansford Mun. (1), \$3,800.

Oklahoma: Miami Mun. (3), \$28,387; Tulakes Mun. No. 2 (3), \$156,916.

(Continued on page 52)

Airport Tours: An outstanding job of aviation education through group tours is being done at Oakland Municipal Airport, where 79 groups totaling 3,187 children and adults were handled in the first six months of this year, as against approximately 3,800 in all of 1950. Oakland schools stress air age education in their curricula, and the airport cooperates with the educational program as a public service. Of the 3,187 total, the big majority—2,287—were grammar school children. Also making the tours were 200 parents accompanying school groups, 150 adults making group tours, 250 college students, and 400 high school students. In addition, through the cooperation of a fixed-base operator, Pacific Aircraft Sales, the Oakland airport provides plane rides for children who write outstanding essays on the subject of aviation. Chief Serviceman Jerry Davis, the airport employee who conducts the tours, firmly believes they will pay off handsomely in aviation customers in the years ahead. By the way, what is your airport doing about air age education?

• **Board of Airport Commissioners** of Los Angeles have under consideration a proposal by a syndicate interested in building a \$1,500,000 hotel at Los Angeles International Airport.

RUNWAYS, ETC.

• **Contract** has been let for partial grading of the runway at new Mercer County (W. Va.) Airport.

• **A \$146,952 contract** for building new aprons and taxiways at Worcester (Mass.) Municipal has been let.

MISCELLANEOUS

• **A license** for a cocktail lounge at Detroit's Willow Run Airport has been approved by county authorities.

• **New Oneida County Airport** at Utica, N. Y., was dedicated July 28.

• **New airports recently dedicated** include: Cuyahoga County Airport, Cleveland; Louise Thaden Field, Bentonville, Ark.; Marksville (La.) Municipal; Jefferson (La.) Municipal, and Watervliet (Mich.) Municipal. McKean Airport at Bradford, Pa., was to be dedicated last week.

• **Luther Flying Service Co.** has signed an operations-management contract with the Johnstown/Cambria County (Pa.) Airport Authority.

• **City of Corpus Christi** has started condemning land for an expansion of Cliff Maus Municipal.

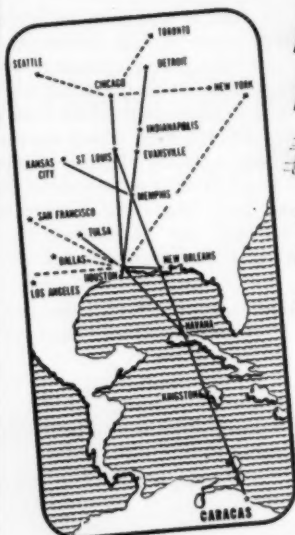
• **New \$110,000 Lake Elmo Airport** near St. Paul, Minn., is now in operation.

• **Issuance of \$2,800,000 in revenue bonds** to finance construction of Toledo's proposed new Class 5 airport will be submitted to voters October 2.



SPECIALLY CONSTRUCTED RAMP has cut cargo handling time almost in half for United Air Lines at its freight terminal on Chicago's Midway Airport. Ramp measures 25 x 50 feet, stands at tailgate level, and is so constructed that four trucks can be loaded or unloaded simultaneously. Fluorescent lighting and spotlights allow maximum night operation. A 5,000-lb. scale stands at the center of the ramp.

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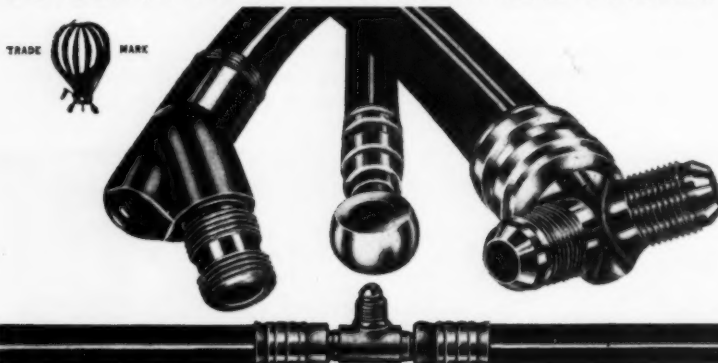
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Airport Grants (cont.)

Pennsylvania: Pottstown Mun. (1), \$18,058; Susquehanna Valley Airport, Selinsgrove (2), \$16,000.

Rhode Island: Theodore Francis Green Airport, Providence (4), \$500,000.

South Dakota: Hayes Mun. (1), \$3,896; Hot Springs Mun. (3), \$11,812.

Tennessee: Tri-Cities Airport, Bristol (3), \$55,000; Outlaw Field, Clarksville (3), \$3,000; Memphis Mun. (5), \$96,000; Murfreesboro Mun. (3), \$58,000; Henry Co. Airport, Paris (2), \$4,500.

Texas: Rio Grande Valley Airport, Brownsville (5), \$34,114; Cayon Mun. (1), \$8,270; Foard Co. Airport, Crowell (1), \$12,403; Love Field, Dallas (5), \$313,178; Ft. Worth International (5), \$300,000; Levelland Mun. (2), \$15,000; Miller Mun., McAllen (2), \$75,000.

Utah: Brigham City (1), \$10,295; Logan-Cache County (4), \$44,162.

Virginia: Patrick Henry Airport, Newport News (3), \$40,000; Norfolk Mun. (4), \$35,000; Byrd Field, Richmond (4), \$12,500; Woodrum Field, Roanoke (3), \$50,000.

Washington: Cashmere-Dryden (1), \$17,600; Boeing Field, Seattle (7), \$503,500.

West Virginia: Mercer Co. Airport, Bluefield (2), \$150,000.

Wyoming: Cheyenne Mun. (5), \$52,700; Brees Field, Laramie (3), \$16,400.

These boosted to 1,959 the total of grant offers made under the Federal Airport Program, and increased to \$162,589,573 the amount of Federal funds involved.

Airport People

Harry S. McCandless is now manager of Council Bluffs (Iowa) Municipal, succeeding James Cook, who has joined United Air Lines as a co-pilot.

Clarence Flora has been named temporary manager of the Ballston Spa (N. Y.) Airport.

Robert Schafer is now manager of the Minden (Neb.) Municipal Airport.

J. W. Reeves, Jr., general manager of the Los Angeles Department of Airports, has had his salary raised \$2,500 to \$17,500 a year.

John B. Randolph has been named chief of the Aviation Division of the Puerto Rico Transportation Authority, succeeding Eddie Holohan, resigned. In aviation for more than 20 years, Randolph has been director of secondary airports with the Minneapolis/St. Paul Metropolitan Airports Commission for the past three years and before that was manager of Lambert-St. Louis Municipal for four years. He will have six airports under his jurisdiction in Puerto Rico.

Clyde W. Pace, Jr., head of the aviation section of the Missouri Division of Resources and Development since 1947, has accepted the post of airport management consultant for CAA's Fifth Region. Lee Lamar, former airport engineer in the Missouri agency, has been appointed acting chief.

Glenn Tabor, a newspaperman and former Air Force officer, has been named director of aeronautics for the Kansas Industrial Development Commission. He succeeds Riley Whearty, recalled to active military duty.

Pilot Standards Stiffened by New Rules

Revised student requirements now in effect; changes planned for commercial pilots, airmen.

By VERA FOSTER

CAA and CAB are taking long strides in their combined efforts to achieve increasingly realistic pilot and airman proficiency standards. In two such steps—one which has materially stiffened private pilot requirements, the other which proposes a series of equivalent changes in commercial pilot and airman certificates—the agencies are emphasizing more cross-country, night and instrument flight time, more practical and more precisely defined flying techniques, and more frequent certificate and rating renewals.

Because the changes may at least temporarily necessitate some hardship on individual pilots, industry reaction is bound to be partially unfavorable. Obvious purpose and probable eventual result of the revisions, however, will be a measurable increase in over-all safety. As CAA puts it, student pilots will be training not for one examination but for the actual problems to be encountered in everyday flying.

In the case of commercial pilots and holders of airman certificates, there will be added assurance of compliance with ICAO-imposed international standards, as well as more valid statistical data.

Specifically, the several changes will amount to the following:

Private Pilots

- **Unapproved school requirements**, formerly 10 hours of dual and 30 solo hours, are now 15 hours of dual (at least five of which must be cross-country), and 25 hours of solo time of which 10 must be cross-country. At least one solo flight must be made to a point over 100 miles distant from the home airport, with landings 25 miles out; before soloing, the student pilot must have had a minimum of eight hours of dual instruction. Approved schools must provide at least 35 total hours of instruction, with 15-hour dual and 13-hour solo minimums, and 7 hours which may be either dual or solo.

- **The new written examinations** for private pilots are now longer, covering a wider range of subject matter. In addition to questions on general operation information, there is an added emphasis on practical knowledge, notably in cross-country and radio operating practice.

- **In the practical flight test**, however applicants will find things even stiffer. They will have to demonstrate cross-

Private Pilot Experience Requirements

	Old	New
Dual Approved Schools		
Cross-Country	2	4
Other	13	11
Total	15	15
Solo		
Cross-Country	5	8
Other	8	5
Optional	7	7
Total	20	20
TOTAL TIME	35	35
Dual Unapproved Schools		
Cross-Country (Optional)	5	5
Other	10	10
Total	10	15
Solo		
Cross-Country	3	10
Other	27	15
Total	30	25
TOTAL TIME	40	40

country planning and flying, refined stall recovery techniques, more varied take-off and landing methods, weather interpretation, radio operation, etc.

In the typical flight test, after consulting weather data and drawing his course, the student, once in the air, will be required to set and hold a heading, allowing for wind drift and other variables. After he settles down on course the examiner will ask him to select an alternate airport, plot his new course, and fly the new heading.

When asked to demonstrate his stall recovery technique, the student will have to remember that the approved method has been appreciably altered by recent CAA-sponsored research. Instead of immediately "dumping" the nose of his plane far below the horizon, he will have to perform recoveries for three different types of stalls—"partial," "normal" or "complete"; he must add full power and, according to the degree of stall, nose the aircraft down to the horizon, or below the horizon, or below the normal glide path. Later in the test, he will even be required to demonstrate a power-off recovery for each of the three stalls.

As proof of his ability to handle his airplane while his attention is directed outside the cockpit, the applicant will be told to execute a one-pylon circle, maintaining not only adequate speed and altitude in reference to the ground,

but also a constant distance from the pylon. This, despite any attempts the examiner may make to distract him. (The two-ylon figure "8" maneuver is no longer required.)

In testing the student's skill in "slow flight," the examiner will specify minimum-speed climbs, descents and turns as well as level flight. The new regulations also direct him to cut the throttle; if an immediate stall is precipitated, he thus makes certain that the plane is actually being flown at a true minimum speed.

Returning to the home airport, the pilot applicant may be called upon to give additional proof of his skill by accomplishing a power-off, 180-degree approach as his emergency landing, and several cross-wind or rough-field landings.

These and many other modified maneuvers are explained in CAA's new Flight Instruction Manual (Technical Manual 100, Government Printing Office, Washington 25, D. C.; \$1.50), a condensation of five different manuals published within the past ten years. Many controversial methods will be noted in the booklet but, as CAA points out, the manual does not presume to present the only "right" way to fly—merely one most widely accepted.

Exactng though these regulations may be, they will entail few major inconveniences to individual would-be private pilots. National Aviation Trades Association has observed that the insistence on a written examination only by qualified CAA men will mean loss of working hours and delay to the applicant. And CAA is frank in predicting a high initial percentage of rejects. Total number of failures, however, is expected to decrease as instructors and schools bolster inadequate training practices now in effect. Equally important will be a probable increase in average individual private pilot competence.

Commercial Pilots

Although industry reaction is generally favorable to the already-effective regulations governing private pilot certification, approval of the proposed standards affecting commercial pilots and airmen may not be so unqualified.

Proposed changes to the Civil Air Regulations as recently published in the Federal Register would increase minimum commercial pilot experience requirements to at least five hours of night and 10 hours of instrument flight instruction as part of the 200 hours minimum total experience.

An AMERICAN AVIATION check of the

Washington area shows that this type of training would increase the cost of a commercial pilot certificate by at least \$67. But the big objection to this ruling is the scarcity of instrument training facilities in most sections of the country.

CAA is careful to state that this instrument instruction need not be given by a pilot with an instrument rating and that only rudimentary knowledge will be taught. Even this lenience, however, does not entirely eliminate the cost and inconvenience which, the industry feels, will result from the required instrument training.

Airman Certificates

Another proposal in CAA's streamlining program would require all certificated airmen to renew their certificates every 24 months rather than have the certificates of indefinite duration as is now the case. Airmen certificated before May 1, 1949, would be required to renew their certificates before May 1, 1953, while those rated since that date and prior to October 1, 1951, are given until May 1, 1954. The term "airmen," as used here, covers all mechanics, flight engineers, flight radio operators, dispatchers, flight navigators, control tower operators, as well as pilots.

Principal reasons for the changes in airman rating duration and commercial pilot requirements are to bring U. S. standards within the International Civil Aviation Organization standards and to make certain that airman certificate holders are genuinely and continuously active in this type of work.

WINGS OF YESTERDAY

25 Years Ago

National Air Transport, Inc., on August 11, 1926, completed the first three months operation of its thousand-mile Texas-Chicago line, with an average efficiency of over 97%. Paul Henderson, general manager of the company, recommended that passenger service be established as soon as necessary equipment could be produced.

William P. MacCracken Jr., of Chicago, was appointed by President Coolidge to be Assistant Secretary of Commerce for Aviation, an office created by the Air Commerce Act of 1926.

10 Years Ago

Dr. Jerome C. Hunsaker was elected chairman of the National Advisory Committee for Aeronautics, succeeding Dr. Vannevar Bush, who resigned to accept Presidential appointment as director of the newly created Office of Scientific Research and Development.

The Washington View

By Vera Foster



THE omnibus Reserve Bill, H.R. 4860, affecting organization, training and recall of reserve groups is now being heard by the House Armed Services Subcommittee. The bill has a lot of support from the Department of Defense, Navy, Marines, and Air Force, but some opposition from National Guard groups is expected. Hearings will probably take several weeks.

Additional Air Defense Identification Zones are likely by September 1 near the Canadian border and surrounding Alaska, with free airspace still available below 4,000 feet for the operation of private and executive planes.

Overseas markets are rapidly developing, thanks to the State Department Point Four aid recently sent to Iran and just last week to Pakistan. American contractors can hope for increased business as U. S. planes and chemicals show their worth.

South America, too, is getting a taste of spray plane aid via Point Four. Planes are now enroute to Brazil and Colombia for locust control.

One of the oldest and best-known schools in the east is closing up. After 21 years, the Rising Sun School of Aeronautics in Philadelphia, headed by Allan Whitlock, sees no chance of surviving the current scarcity of students resulting from draft and industry demands for labor.

AT-6 surplus trainers are being looked at more appreciatively by their owners since the recent Air Force purchase of 100 of these ships, not only from North American Aviation, but also from private owners. The planes are to be shipped to member nations of the Mutual Defense Assistance Program. Average price paid for the ships—\$4,945.68.

A new technique for 2, 4-D application has been developed in Hawaii and tried out on the west coast. The weed-killer is combined with mineral clay and "pellitized." Even in 25 mph winds, there is little danger of drift. Growing crops remain unaffected while the 2, 4-D is given a chance at weeds in the top inch of soil.

The old question—are flying clubs practical?—may be answered by the Umpqua Flying Club of Roseburg Airport, Oregon. The club was organized in 1936, now has 40 members and owns four airplanes. Just recently the club leased the Roseburg Airport. This is the first time we've heard of a municipally-owned airport operated by a local flying club.

Even though total production of aircraft in the less-than-ten-place category has decreased roughly 20% this year so far, exports are climbing. The first six months of 1950 saw only 177 aircraft exported; this year it's 250, and represents 18% of total production.

Prospective private pilots please note—written exams will be taken verbatim from CAA's new booklet "Questions and Answers for Private Pilots." It is available for 15c from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

William Johnson finds it easy to do "double duty"



Mr. Johnson has an important desk job as General Manager of Charles B. Johnson, maker of sizing machines for textile mills. It's vital that he and other key men make field trips, too. The company's Twin-Engine Beech Executive Transport and Beechcraft Bonanza allow them to do both jobs. They clip travel time as much as 75%!

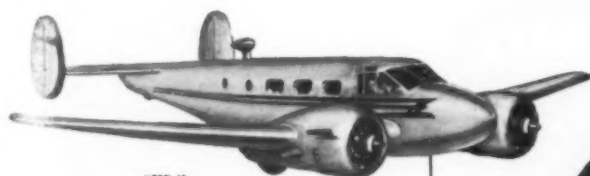
Today, with mills filling government contracts, these Beechcrafts help keep production rolling. Example: A Johnson Sizer in a deep-south mill after long operation needed a replacement part. Thanks to Beechcraft "special delivery," the machine was idle just four hours!



The sleek, unsurpassed Beech "Twin" is a familiar sight on all the world's airports. Its versatility, reliability and high performance characteristics have been proved in service of leading industries and the Armed Forces. The cabin is comfortable and soundproofed—with several custom-

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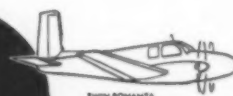
- Cruising speed, 200 mph
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- Seating arrangements for 7, 8 or 9



MODEL 18



BONANZA



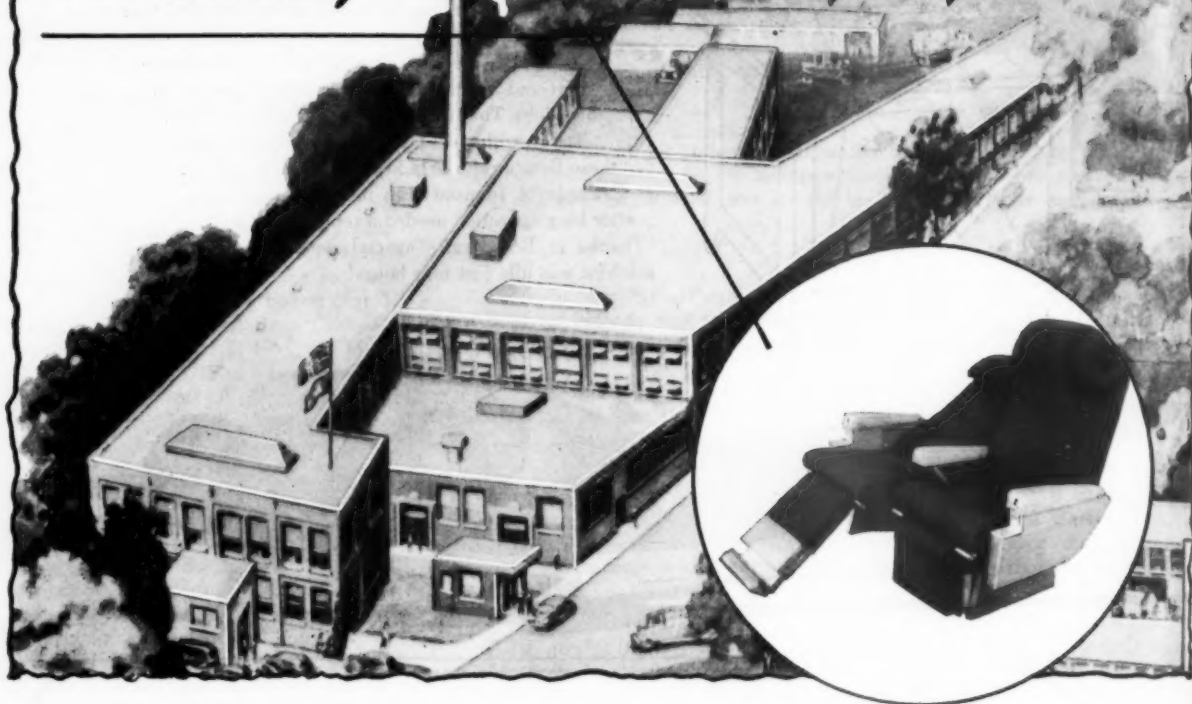
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Your passengers ride confidently in Aerotherm Aircraft Seats. Each design combines the comfort and safety features proven most desirable by airline experience. These seats also have gained enviable records for easy, low-cost maintenance.

An example is the Aerotherm Model 406D double passenger aircraft seat shown here. Seat and reclining back (maximum

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IN FLIGHT

A PAGE FOR ALL PILOTS

More Pilots, More Speed

There are a good many interesting statistics available if one has the time and talent to collect and interpret them. In its report to the President on the American Airlines-Air Line Pilots Association dispute earlier this year, the Presidential Emergency Board provided such statistics (see chart) on pilot employment in the domestic airlines as related to increases in aircraft speed.

	Pilots Employed	Index	Average Speed	Index
1934	667	100.0	127	100.0
1935	874	131.0	142	111.8
1936	1,055	158.2	149	117.3
1937	1,064	159.5	153	120.5
1939	1,412	211.7	153	120.5
1941	2,217	332.4	157	123.6
1945	4,967	744.7	155	122.0
1946	5,712	856.4	160	126.0
1947	5,934	754.7	168	132.3
1949	5,235	784.9	179	140.9
1950	5,385	800.7	N.A.	

Between 1934 and 1949, during which time aircraft average speed rose 40.9%, pilot employment is shown to have increased over 700%. The Board also pointed out that, in addition to higher speeds, the 1950 aircraft carries payloads ranging from 300 to 1,000% greater than in 1930. As a result, pilot and co-pilot earnings per dollar of operating revenue, per revenue passenger mile and per ton mile showed sharp reductions:

	¢ per Dollar of Operating Revenue	¢ per Revenue Passenger Mile	¢ per Revenue Ton Mile
1939	10.3	.0075	.0670
1941	9.8	.0063	.0565
1945	8.7	.0055	.0432
1948	7.5	.0049	.0397
1949	6.6	.0043	.0340
1950	6.1	.0039	.0312

What Kind of Man Is a 'Safe' Pilot?

"Extra Section" recently carried an item regarding a psychologist who had developed an interesting test to determine accident proneness among pilots and other groups (AMERICAN AVIATION, July 9). It resulted in a letter from reader E. L. Stephenson (see Letters, August 6 issue) of Associated Aviation Underwriters with some of his thoughts on a "Pilot Yardstick." Since aviation underwriters are important people in this game, perhaps you'll find these comments of interest:

"Why do some pilots grow old and others die young?"

"Let's compare the two groups and see if we can set up a fairly accurate yardstick for determining in advance the probable longevity of pilots. An aviation underwriter has to do that to stay in business."

"Most of the hundreds of old pilots we have known for 20 years have certain common characteristics. First of all they are good men. Apparently you have to be a pretty good man before you can be a safe pilot. It takes real character, judgment, mental stability, and poise. In the air, as on the sea, you deal with fundamentals—and you play for keeps. You have to be a simple, uncomplicated person to think straight. The elements teach you to respect them

and no man who has faced them for long can be other than quietly humble.

"Since those qualities are found in most old pilots we believe they are necessary for longevity. Pilot skill is secondary because a man of good judgment will know his own ability and will know what he faces in a given situation and will never bite off more than he can chew. Abraham Lincoln would have made a good pilot. Mussolini would probably have become a statistic."

"Of course, there are a few old timers who are fugitives from the law of averages. Every once in a while we bury one of them because his luck ran out. We knew of one who was getting a 5% kick-back from the repair shop on all maintenance. This poor judgment later showed up in the cockpit and he crashed and burned."

"Barring the unavoidable accidents (if there is such a thing) most of this type of pilot also have certain characteristics in common. Most of them started flying because they had an inferiority complex and they thought there was adventure and glamour in flying that would inflate their ego and make them feel important. They became King for an hour—and an insurance company statistic for Eternity. This inferiority complex is back of all 'showing off' and is the greatest pilot killer of all. It makes them try to get through impossible weather when the boss demands it, and dozens of other silly things."

"Many of them have complicated, twisted mental processes and unsound judgment and are emotionally unstable. Often they do not fully understand a particular flying problem and therefore are not competent to judge their own ability or lack of ability to solve it. They are cocky and talkative and like to let people know that they are pilots. They may actually know a lot about various phases of flying and may have phenomenal coordination and flying skill and may have got out of lots of tight spots, that a man of better judgment would not have been in. The plain truth is that a lot of them just do not measure up as men. They lack stability and dependability and are more or less prima donnas. These cemetery characteristics are quite common. Unfortunately, flying attracts too many of that type."

"You can teach a monkey a high degree of skill in handling the controls of a plane, and he might even pass a check ride, but would he deliver when the chips were down? As aviation underwriters we have to separate the men from the monkeys—or go broke. These ideas have kept us in business for 20 years. We hope they will be useful to you."

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Using the afterburners, Northrop Aircraft test pilots make downwind takeoffs from the Hawthorne Municipal Airport's 5,000-foot runway with the all-weather F-89 Scorpions.

Under moderate wind conditions, the downwind takeoffs are company policy owing to the fact there are clear areas in this direction and into the wind takeoffs are over rooftops.

Flashy performers, the F-89 production models being flown from the factory at the Hawthorne plant to Northrop's production testing base at Ontario, Calif. International Airport, make it easily with the afterburners blasting. They give the airplane tremendous lift and climb. In a recent demonstration for a special group, a Northrop test pilot landed and came to a stop within half the length of the runway and then switched around in mid-airport and took-off downwind, clearing the fence with room to spare. This takeoff was reportedly at around 32,000 pounds.

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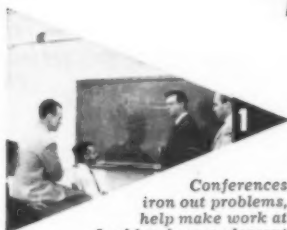
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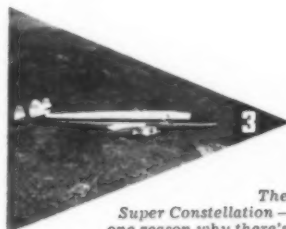
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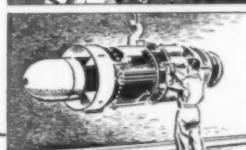
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Crossroads: So this was Singapore.

Crossroads of the Far East, fueling station for the ships of the world, just a tiny British dot at the southern tip of the steaming Malayan jungles. A teeming polyglot population of Hindus, Chinese and Malaysians. Turbaned Sikh guards to keep the peace. One of the western world's few remaining outposts in a nationalistic Asia.

It was toward the end of the afternoon when our BOAC Argonaut began descending through the high cumulus to break out over dense jungles and isolated rubber plantations of Malaya. Then we crossed the narrow water separating the 20-mile-wide British island from the Peninsula, circled over the harbor of the city and landed on the airport just east of the business district.

The ground and ramp area were still wet. Three solid weeks of rain, 22 inches in 22 days, had just ended less than an hour before our plane landed. The sun shone brightly. It was hot and humid. In the terminal, finest in the Far East when it was built in 1936 and still not bad, everything seemed to be confusion as it often is at busy airports. A crowd of Hindus and Chinese meeting friends was making a fearful racket. But my wife and I were moved swiftly through customs and immigration; I have yet to have a bad experience with British officials.

Raffles: It's nice to be met in foreign places. This time our greeters were A. W. Savage, the savvy and unruffled Briton who plans for the decades ahead as though Singapore will go on forever; Gordon Jones, then the local sales manager for Pan American, and his wife, a former PAA stewardess; and Stan Gluck, the personable local operations manager for PAA.



In a few minutes we were at the famous Raffles Hotel, a "must" on every travel itinerary to the Far East, famed in press and literature and a crossroads rendezvous for the best and the worst of the travelers and the tramps. Named for an early governor in those parts, the Raffles is third class by deluxe

New York standards but it's the best available in tropical Singapore.

Hotel? It's more of an adventure. It doesn't make any sense architectural-ly or functionally. It isn't anything, really, except a series of meandering wings, no two alike, varying from two to three stories high. Nothing matches and it wouldn't be Raffles if it did. It sprawls along two street fronts and in and around courts like a maze.

Characters: You can really see some colonial characters in Raffles—the big flowing mustaches, sun helmets and all the rest of it. Open to the main



street is a big high-ceiling lounge for tea, cocktails and dancing. Wide open. Sparrows nest high in the rafters. Hindus run the front office and the roomboys and other staff are an Oriental mixture too baffling for me to unravel. The dining room is uninviting in appearance but there are a few good shops in the arcades and courts. You can't miss Raffles. There's nothing like it anywhere else. Even imaginative Hollywood would fall down in trying to reproduce it.

After registering in on one of those big old-fashioned ledger books which require a life's history, we got a real surprise. Gordon Jones has snagged one of the 55 air-conditioned suites installed since the war. Way off in one wing reached by a balcony opening on a side street we were taken to our suite but I can assure you any resemblance between this suite and the kind you're thinking about is purely coincidental.

Cool Cubicle: Off the balcony through a screen door was a parlor with center table, an old sofa and a couple of chairs, all badly in need of paint. A big ceiling fan provided a breeze. Just behind the parlor was an enclosed bedroom with low ceiling, just high enough for standing room. It was a room within a room and this proved to be a bedroom cubicle nicely air-conditioned. Hot air in front, overhead and behind but very cool inside. Behind the bedroom was a large dressing room and then a barn-like bathroom.

It was quite a deal. You could sleep

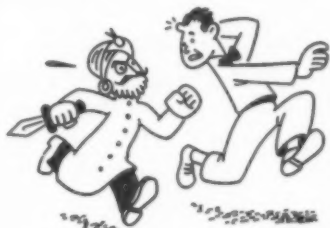
in comfort but for dressing and bathing you had to get back into the hot, humid air. It was a Philco machine, very smooth and quiet, and it took so much water out of the air that the roomboy had to empty the pan under the conditioner twice a day. Restricted though it was, that air-conditioning was worth whatever they charged.

Bananas at 6: Our roomboy tried hard to please. He was a pleasant cuss, probably living on puny wages, sliding along the corridors barefoot and willing to do anything for his customers. Every morning at 6 he brought tea and bananas. I pleaded with him not to wake me up at that hour and he promised faithfully. But next morning at 6 he knocked on the bedroom door with tea and bananas anyway. Why tea and bananas? I'll be damned if I know. Silly idea. The tea made sense. But bananas at 6 a.m.? That's Singapore for you.

I can't say that I liked Singapore, although I hope to go back there again. It is of vast importance as a port. There are some fine people there. Maybe it was the depressing heat and humidity. But I left with an impression of uneasiness, of sullen natives, of a tenseness that might break out at any time. The atmosphere just wasn't healthy and all of the Americans living there were jittery. Two things account for this.

Hindu Riots: One is the ease with which the Japanese moved in on Singapore in the last war. An Oriental race shoved the white man aside for the first time. Temporary though it was, the Japanese onrush over Southeast Asia left its marks. The white man isn't as supreme as he once was.

The second is the vicious riots by the Hindus late last year. Remember the Dutch girl who was left with a native during the war and who was married to a Hindu and then the parents asked the British courts to get her back? The



British courts upheld the parents. The Hindus rioted and were out of control for three days. The Singapore police barricaded themselves in their stations.

The spontaneity of the riots and the viciousness of the attacks on the white man shocked the British. They weren't prepared. Quite a few people were killed. Fortunately the Chinese and Malaysians didn't participate—they had no interest. The riots happened so fast the Commies didn't have time to capitalize on them. We have riots, even racial riots, in the U. S., but these in Singapore left bitter scars. Those I talked to who lived through them didn't want to see any more. The Hindus used broken Coca Cola bottles to beat their victims. It will take a long time for a racial situation like this to heal.

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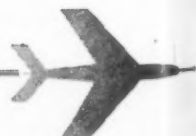
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NEWS SECTION

(Continued from Opposite Page 3)

version of the 18 Curtiss C-46's it purchased from the USAF last autumn and all are now in scheduled service. Direct service to a greater number of points and elimination of transfers at main terminals have resulted.

Charge Dropped: Northwest Airlines has dropped its charge against Boeing Airplane Co. that the Stratocruisers did not conform to contract specifications. But NWA's damage suit alleging losses caused by delivery delays and pricing of spare parts and change orders are still pending.

Little Air Lift: Commercial airlines flying export goods from Berlin to West Germany were expected to double their seven planes to move more goods. The seven planes have a capacity of 160 tons a day. Russia has banned surface shipments across its zone.

Transocean Service: Transocean Air Lines has started its once weekly service linking Guam, Saipan, Yap, Koror, Truk, Ponape, Majuro and Kwajalein with a fleet of Consolidated Vultee PBV-5A flying boats. TAL's contract with the U. S. is effective to next June 30, but the government may renew through 1956.

S & W Utilization: Seaboard & Western Airlines achieved 14 hours and 10 minutes daily utilization on its Douglas DC-4 used in the Pacific air lift during the second quarter. Over-all utilization on all its operations for the same period was 13 hours and 14 minutes daily.

CCA Buys 202's: California Central Airlines has bought eight of Northwest Airlines Martin 202's plus \$300,000 in spare parts. In return NWA got five Douglas DC-3's, two DC-4's and an undisclosed amount of cash. NWA, which expects to sell its remaining 202's, now has 10 Boeing Stratocruisers, 24 DC-4's and 7 DC-3's.

UAL Coach: United Air Lines will start daylight transcontinental coach service September 30 with 66 passenger DC-4's. One flight will go between New York and San Francisco, via Chicago, each way daily. New York-Frisco fare will be \$110.

Phoenix Fees: Increased airport lease charges at Sky Harbor Municipal Airport, Phoenix, Ariz., will give the city \$42,000 in the current fiscal year as against \$15,000 in the year ended June 30. American Airlines and Trans World Airlines will pay about \$35,000 of that amount. Leases run for 15 years through December, 1965 and provide for 10% up or down adjustments at five year intervals.

IATA Office Moves: International Air Transport Association's Consolidated Tariffs Office has moved to 509 Madison Avenue, New York 22.

Continental Lease: Continental Air Lines has leased a Douglas DC-4 transport from Los Angeles Air Service for one year. The plane has been converted to carry 68 passengers.

People: Sigmund Janas, Sr., former Colonial Airlines president, has also resigned as a director . . . Col. B. L. Anderson named vice president of Philippine Air Lines.

MILITARY

RF-84F Confirmed: Tactical Air Command has confirmed existence of a production order for Republic's F-84F, Stratojet reconnaissance version. They will replace RF-80's now in service. Top speed is "in excess of 700 mph." J-65 intake has been moved from nose to wing roots to permit camera installations.

More Alkylate: Navy and USAF want production

of aviation alkylate, key ingredient in aviation gasoline, increased by 25%, from 127,000 to 158,000 barrels a day. About \$85,000,000 has been set aside in new budget for the purpose.

Small Business Office: Western Air Procurement District, 155 West Washington Blvd., Los Angeles, has set up a small business office headed by George J. Byrnes. Small business specialists will also be located at WAIP regional offices.

People: Norman L. Winter, chief sales engineer for Sperry Gyroscope Co., appointed chairman of Research and Development Board's Navigation Technical Group.



CIVIL AERONAUTICS BOARD

SWA-WCA Merger Denied: CAB unanimously voted against proposed merger under which Southwest Airways would absorb West Coast Airlines, despite examiner's recommendation for approval. Board found that merger would tie together two trade areas which are not essentially related to each other, referring to the Seattle/Portland area served by West Coast and the Los Angeles area served by Southwest. Instead, Board indicated an Empire-West Coast hook-up and a Southwest-Bonanza merger may be more in the public interest.

U. S.-Alaska Rate: Acting on complaint of non-sked president Amos E. Heacock, CAB ordered major investigation of current airline rates and fares between the U. S. and Alaska. Involved are tariffs of Pan American, Northwest, and Alaska Airlines. Alaska's tariffs, covering newly-authorized service between Portland/Seattle and Alaska, became effective August 12. Pan Am's and NWA's tariffs have been in effect for some time. CAB's action does not involve suspension of the tariffs. In related action, however, Board suspended and ordered investigation of Air Transport Associates' tariffs filed by Heacock in answer to Alaska Airlines' new rates.

Wiggins Renewal: E. W. Wiggins Airways, New England local service line, submitted 10-year plan for operations one day after CAB injected "dismemberment" issues into the Wiggins Renewal Case. Carrier's plan involves revised routes with more emphasis on north-south operations. It also contemplates eventual switch from fixed-wing to helicopter operations following experiment on three segments radiating from Boston. CAB, which once informally directed Wiggins to sell out to Robinson Airlines but later cooled on the idea, now will explore possibility of parcelling out Wiggins' routes if the line's certificate is not renewed.

Actions

• **Los Angeles Airways**, helicopter operator, directed to show cause why mail pay for past period ending December 31, 1950, should not be increased by \$83,045. It would bring total payment for period to \$1,351,190 or approximately \$1.35 per revenue plane-mile flown. For "future" period beginning January 1, 1951, Board proposed \$1.30 per plane-mile for first 30,000 miles monthly and 60c per mile for excess of 30,000 amounting to annual average of about \$468,000.

• **Continental Air Lines** granted an exemption to serve flood-stricken Manhattan, Kansas, on Route 29 for 90 days. Point is mid-way between Salina and Topeka, Kansas, on CAL's route. Board action was in response to emergency request from city.

• **Big Four airlines** directed to show cause why new subsidy-free 45c ton-mile rate should not be established for period beginning January 1, 1951. Action is first in formal process of effecting new rates agreed upon six weeks ago at informal conferences. Rate set for period prior to January 1, is 63c with carriers faced with refunding total of approximately \$5 million to the Government. No objections are expected.

• Southern Airways authorized to provide flag-stop service at any intermediate points on Route 98, provided no traffic is available at or destined to such points.

Applications and Petitions

• National Airlines applied for an exemption to extend its routes to Balboa until its application for certificate amendment can be acted upon. National asked the extension to facilitate interchange operations at Balboa with Panagra between New York and South America.

• All American Airways applied for permanent certificate for local service route No. 97 or in the alternative for a five year extension from date of final CAB decision. AAA's current certificate expires January 11, 1952.

W. R. Grace & Co. urged CAB to refuse to accept or recognize recent Pan American World Airways' move to withdraw portions of the Through Flight Agreement providing for election of a Grace nominee to Panagra's presidency. Grace said Pan Am's action is directly contradictory to its opinion and belief at the time it originally solicited CAB approval of the Through Flight Agreement in 1946.

CONGRESS

No Investigation: Rep. Carl Vinson (D., Ga.), chairman of the House Armed Services Committee, has turned down a proposal by Rep. Sterling Cole (R., N. Y.) to investigate USAF employment and build-up of tactical air power. Vinson said the Air Force should be given a full opportunity to develop its tactical aviation.

PO-Treasury Bill: President Truman has signed the appropriations bill for the Post Office and Treasury Departments. It provides \$15,350,000 for the U. S. Coast Guard and \$465,000,000 for the transportation of mail (all forms).

Separation Bill: Senate Interstate and Foreign Commerce Committee has been told the Defense Department would prefer that any certificated air carrier, either all cargo or passenger-cargo, be made eligible to apply for subsidy under the terms of the air mail-subsidy separation bill. Post Office has not yet replied to question as to whether it requires a certain priority with reference to mail schedules dealing with passengers.

CIVIL AVIATION

Speed Record: Max Conrad, flying a Piper Pacer, has set an unofficial lightplane speed record by completing 2,200 miles in 18 hours, 44 minutes, averaging 100 mph.

Exports Up: Despite a 20% drop in lightplane production, exports have gone up. For first six months of 1951, lightplane builders shipped out of U. S. 250 planes worth \$1,976,580. Same period of 1950 had 177 units worth \$1,045,833 exported.

People: John B. Randolph, formerly with Minneapolis-St. Paul Metropolitan Airports Commission, named chief of Aviation Division, Puerto Rico Transportation Authority.

LABOR

IAM District Offices: International Association of Machinists-AFL representatives and 19 airlines are discussing plans for organizing IAM district offices among them.

Pension Study: Wage Stabilization Board has set up a six man group to study health, welfare and pension programs. When a formula covering these benefits is drawn up, they will not be considered part of the legal 10% wage hike.

Convair Pact: Consolidated Vultee and IAM representatives have agreed on a new contract for both the Fort Worth and San Diego divisions granting a 4% wage hike for hourly workers. Salaried workers will get corresponding boosts.

Tulsa Battle: Workers of Douglas' Tulsa plant will vote August 23 to determine whether they will be represented by the United Auto Workers-CIO or the IAM-AFL. Winning union will have a potential membership of 12,000 even though only 700 will vote.

Lockheed Agreement: Lockheed Aircraft Corp. and IAM-AFL have agreed on a new pact calling for a blanket 8% wage hike, group insurance and job reclassifications. Lockheed will pay half the cost of group insurance if WSB approves.

Braniff Contract: UAW-CIO and Braniff Airways have agreed on a 10 cent an hour pay increase for 650 maintenance employees. The one year contract provides for a reopening of negotiations if the cost of living index rises to a certain point.

WAL Strike Ends: The 300 striking mechanics of Western Air Lines have returned to work and differences between the company and the Air Carrier Mechanics Association-AFL will be mediated. Negotiators will discuss an escalator pay clause, frequency of pay days, vacation time and moving expenses. The mechanics have dropped their previous demand for a union shop, dues check off and prohibition of subcontracting maintenance work to outside firms.

Possible Douglas Strike: United Automobile Workers-CIO have authorized a strike at Douglas Aircraft Co.'s Long Beach plant. Present contract ends September 5. UAW's international executive board in Detroit must approve any strike before a local may walk out. Douglas and union representatives have been unable to reach any agreement on the new pact.

AROUND THE WORLD

RAF In Competition: Britain's Royal Air Force has accepted a USAF Strategic Air Command invitation to take part in the bombing and navigation competition scheduled for MacDill AFB, Fla., August 13-18. RAF pilots will man two SAC Boeing B-29's like those delivered under MDAP.

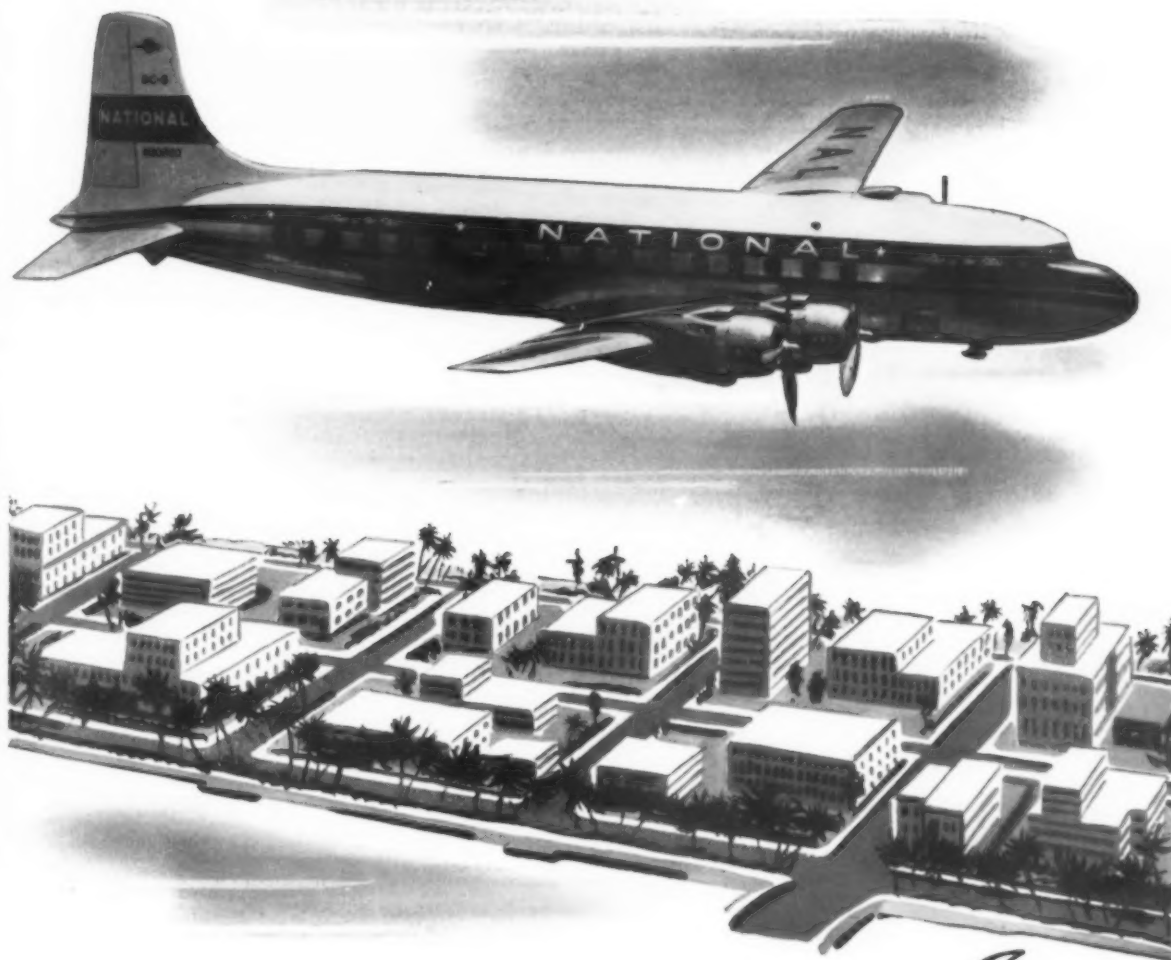
Japanese Airline: Although there are reports of progress toward a Japanese airline under guidance of outside airlines, it is believed Japan will wait till after a peace treaty is signed so that it can organize its own line. Present proposals call for Central Air Transport (Formosa) and Philippine Air Lines to supply DC-3's and crews with Pan American and Northwest providing maintenance and some ground handling.

Avon Production: The Rolls Royce Avon turbojet will be produced by the Standard Motor Co., Ltd., Coventry, England. Ordering and installation of equipment have started.

Italian Machine Tools: Italian machine tool builders have received more than \$1,500,000 in orders from a group representing the USAF, Curtiss-Wright Corp. and Wright Aeronautical Corp.

F-86 For Britain: Britain has asked the U. S. for some F-86 airframes so that it can install its own Sapphire jet engines. USAF officials are reported cool to idea.

Dutch Overhaul: KLM Royal Dutch Airlines' technical division will overhaul the Allison J-35 engines in Republic F-84E's supplied to Europe under the MDAP program. Facilities are being installed at Schiphol Airport, Amsterdam.



SKYDROL stars with NATIONAL'S *Star*★

Passengers winging their way between New York and Miami or Havana via National... "Airline of the Stars"... enjoy DC-6B Luxury PLUS. Among other things, "PLUS" means the extra safety of Skydrol, Monsanto's fire-resistant-type hydraulic fluid.

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Write for a copy of the booklet, "More Safety in the Air with Monsanto's Skydrol." Consider the advantages Skydrol offers. See if you don't agree that it's wise to switch to Skydrol. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 S. Second St., St. Louis 4, Mo.

★ ★ ★ ★

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SKYDROL is fire-resistant—exceeds the non-flammability requirements of Aeronautical Material Specification 3150.

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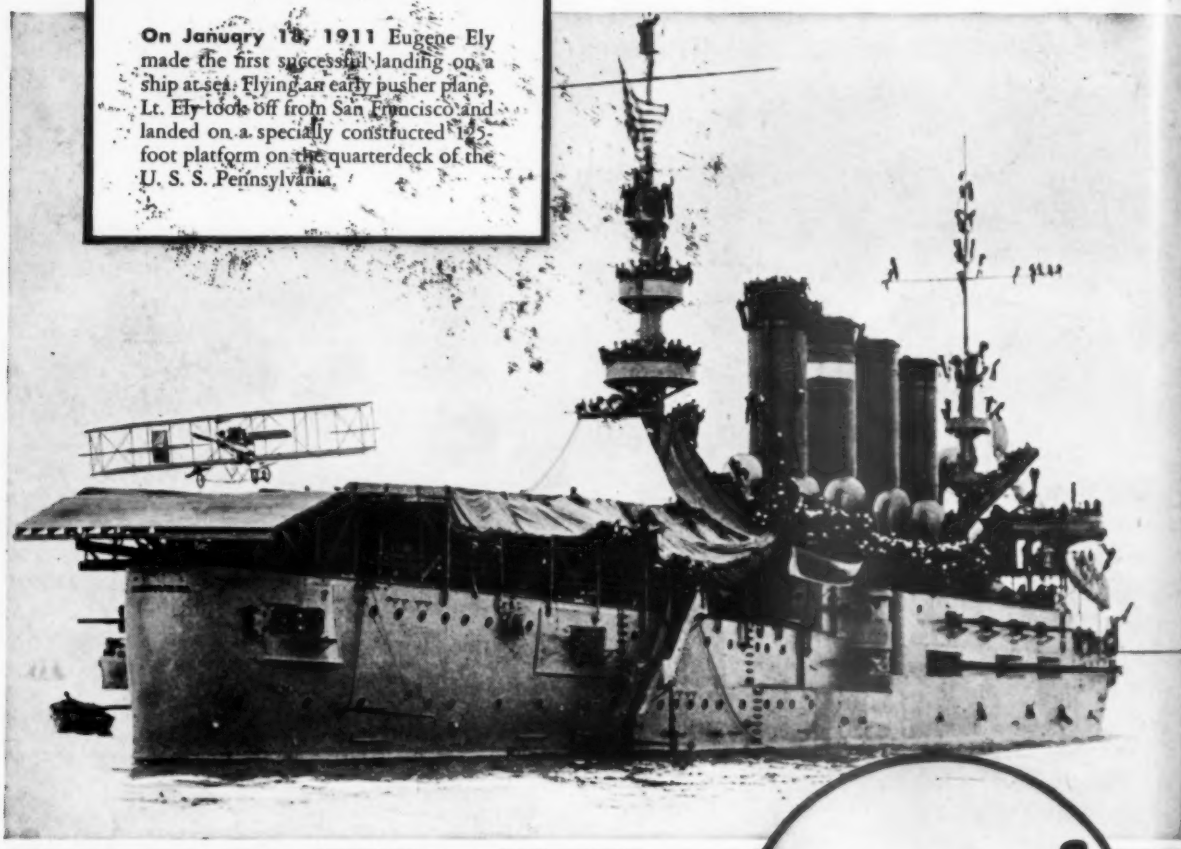
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SERVING INDUSTRY...WHICH SERVES MANKIND

FIRST LANDING ABOARD SHIP - 1911

On January 18, 1911 Eugene Ely made the first successful landing on a ship at sea. Flying an early pusher plane, Lt. Ely took off from San Francisco and landed on a specially constructed 125-foot platform on the quarterdeck of the U. S. S. Pennsylvania.



■ Eugene Ely's pioneer landing aboard the U. S. S. Pennsylvania was the beginning of shipboard aviation. Although years were to pass before the U. S. Navy commissioned its first aircraft carrier, the Langley (converted from a collier), Ely's flight marked the dawn of a new era in naval strategy and tactics.

Phillips Petroleum Company, pioneer in the field of special aviation gasolines and lubricants, has long been one of the country's largest suppliers of aviation fuels for military and commercial use. And now Phillips is ready with new fuels for turbo-props and jets, in addition to its tremendous capacity for producing 115/145 grade aviation gasoline.

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AVIATION PRODUCTS

American Aviation



INDUSTRY'S FIRST NEWS MAGAZINE

NEWS ISSUE

Entered as Second Class Matter

August 27, 1951

Vol. 15 No. 13

a LOOK at the WEEK

Approval by Congress of USAF build-up beyond 95 wings starting this fiscal year would not necessarily mean speed-up in plane delivery program. Regardless of wing goal, Aircraft Production Board believe it necessary to stretch deliveries over longer period. Trouble lies with shortage of machine tools, which prevents engine production from keeping up with air-frame volume.

An additional \$21 billion in military expenditures this fiscal year is being talked about even before the Senate acts on \$56 billion appropriation recently passed by House. The additional funds, according to Administration circles, would include \$12 billion toward development of a 150-group Air Force, \$5.2 billion for Navy aircraft carriers, planes and other projects, and \$4 billion for Army.

Aircraft firms are having increasing difficulty placing orders for controlled materials, since mills already are booked solidly for future production. However, National Production Authority feels that time itself, along with a plan under which mills would stop taking orders for any period except the current quarter, will solve the problem.

British transport plans and production may be seriously affected by rearmament program. However, Comet line probably will continue.

Lockheed this fall will turn to wholly unskilled workers and train them to meet personnel procurement schedules. Others are expected to restore this World War II practice.

Japanese government seems seriously interested in establishing helicopter mail service similar to those operated in Los Angeles and Chicago areas. A Japanese postal representative is now in US gathering information on these operations and will go to London and Brussels for additional data before returning to Japan.

Airlines will have strong support in their fight against the proposed increase in air mail postage from six to eight cents, including some from Sen. Edwin C. Johnson (D., Colo.), chairman of the Senate Interstate and Foreign Commerce Committee. Johnson recently told his committee he would fight any attempt of this kind, recalling that the airlines went through a period of sharply reduced mail volume several years ago when rate was eight cents.

Machine Tool Bottleneck Broken?

Steps to break the machine tool bottleneck which has been seriously hindering aircraft engine production were taken on Aug. 21 when the government allowed another rise in prices for the tool industry. OPS indicated that the higher ceiling prices, which will vary from company to company, will give the manufacturers the incentive needed to expand tool production.

The order permits tool makers

- To increase their base period prices by 12% in computing their current ceilings.

- To include labor and materials costs up to next September 10, instead of up to last December 30 as hitherto.

It was indicated that production of machine tools, now running at an annual rate of \$800,000,000 will be at least doubled within the next year.

Stratos to Build French Turbine

Exclusive U. S. rights for manufacture and sale of the Oredon, French gas turbine auxiliary power plant built by Societe Turbomeca, has been obtained by Stratos Division of Fairchild Engine and Airplane Corp. The 140 hp Oredon weighs only 185 pounds, has overall length of 31.7 inches and diameter of 20.5 inches. Compressor is single stage axial flow type with an annular air intake. The engine is expected to run up to 1,000 hours between overhauls.

New Helio Courier Demonstrated

The Helio Courier, four-place adaptation of the original Helioplane design, was demonstrated for the first time in Boston, with flights made from 100-yard strip near the heart of the city. The high-wing monoplane, developed by Otto C. Koppen of Massachusetts Institute of Technology, and Dr. Lynn L. Bollinger, on leave from Harvard Graduate School of Business Administration, is powered by 260 hp geared Lycoming engine and cruises at 150 mhp.

Present plans do not call for regular commercial production until next year, although custom-built models may be produced for military and a few individual customers.

UAL Negotiations Lag

Leverett Edwards, chairman of the National Mediation Board was in Chicago last week hoping to avert a complete breakdown of contract negotiations between United Air Lines and the Air Lines Pilots Association.

Edwards said the airline has refused the pilots demands for a limitation on the miles they may be required to fly such transports as the Douglas DC-6B at their regular salary rates. The NMB official said there is a "chance" that the pilots may agree to a "freeze" on their progress is made soon in negotiation.

The pilots struck last June, chiefly over the mileage issue, but NMB persuaded them to return to work after two weeks while negotiations continued.

COPY 3

MANUFACTURERS

Plane Output: Mobilizer Charles F. Wilson reports plane production rose 50% during 1951's first half and will jump another 70-80% by year's end. Jet engine output, he said, has risen three or four fold in the past year. Machine tool output should be 300% higher by the end of December, Wilson claims. Overall defense spending is now about \$1.5 billion a month and should rise to \$3 billion by June 1952, he added.

Italian Machine Tools: A joint mission representing USAF, Curtiss-Wright Corp. and Wright Aeronautical Corp. has placed more than \$1,500,000 in machine tool orders with Italian firms.

New Kaman Plant: Kaman Aircraft Corp. will move into a new 104,000 square foot, \$2,000,000 helicopter plant which is to be built by the Navy at Bloomfield, Conn., eight miles from Kaman's present plant at Bradley Field. Construction will not start for several months and Kaman will move in about 10 months after that. Two runways will adjoin the facility for flight testing.

Republic Expansion: The \$1,500,000 expansion program at Republic Aviation Corp. is under way. To be completed next year are a new static test laboratory, modification of a hangar building to allow installation of foundry equipment and a new 40,000 square foot structure.

Gunsight Order: General Motors Corp.'s AC Spark Plug Division has received a USAF contract to build gyroscopic gunsights for aircraft machine guns. About 33,000 of the gunsights were turned out by the Division during the war.

J-47 Parts: Kropp Forge Co., Chicago, will produce parts for the Packard version of the General Electric J-47 engine.

J-65 Parts: American Brake Shoe Co.'s Engineered Castings Division will build a 75,000 square foot plant at Medina, N. Y. to make parts for the Wright J-65 engine. Gibson Refrigerator Co., Greenville, Mich., will produce combustion chambers and shield assemblies for the Sapphire.

Northrop Expansion: Northrop Aircraft, Inc., has started construction of a 250,000 square foot, \$1,364,000 plant which it will lease from Marda Corp. for the manufacture of optical range finders for the U. S. Ordnance Corp. at Anaheim, Calif.

American Aviation

News Issue



Vol. 15, No. 13

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ERIC BRAMLEY, Executive Editor

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Birmingham Plant: USAF will take possession of Birmingham Modification Center in Alabama August 28 and will turn it over to Hayes Aircraft Corp., which will convert North American B-25's to TB-25 trainers there. A Douglas C-124 cycle reconditioning program will be started at Birmingham when B-25 work ends.

PLANES & EQUIPMENT

DC-3 Muffler: Aero Sonic Corp., Brooklyn, N. Y., has developed an engine muffler for the Douglas DC-3 which, tests show, cuts noise by 60%. It consists of a tube within a tube, with the tube assemblies insulated with 1/4 inch steel blanket and the inner wall perforated. In all, there are three surfaces of 1,200 square inches each plus 50,000 perforations to absorb noise. The muffler can be fitted to existing engine installations.

Canberra Flight: First Canberra jet bomber to be delivered to the Royal Australian Air Force made the 10,249 miles from London to Darwin in just over 21 hours, averaging 486 miles an hour.

C-54 Cross Wind Gear: Wright Air Development Center personnel have successfully tested the cross wind landing gear on a Douglas C-54 at Wright-Patterson AFB. The C-54 wheels use caster limits of 15 degrees on either side of the center and a hydraulic centering device to make sure the wheels are in line with the longitudinal axis of the plane before retraction. Pilot can select fixed or castering gear by flipping a switch.

Strip Seal: B. F. Goodrich Co. has developed for the USAF an inflatable strip seal for use in forming a seal between the fuselage and canopy. It may also be used as a water seal between fuselages and detachable cargo structures.

AIRLINES

WAL's Next Step: Western Air Lines will try to get the California Supreme Court to review the state's Public Utilities Commission ruling asserting its jurisdiction of Los Angeles-San Francisco intrastate air fares. Although no hearing has been held, WAL will petition for a rehearing. If all else fails, WAL plans to appeal to the U. S. Supreme Court for a writ of certiorari, ordering the lower court to consider the case.

TACA Reforming: TACA Airways, S. A. is being dissolved as a Panamanian firm and is being reformed as a Delaware corporation known as TACA Corp. The new company is assuming all the assets and liabilities of TACA Airways.

Colonial Plans: Colonial Airlines may ask to have the New York Federal District Court case against it separated from the one against Sigmund Janas, former president. Janas, who also resigned as a director, is still with Colonial as a consultant.

TWA Expansion: Trans World Airlines plans to add a third transcontinental coach flight between New York, Chicago and Los Angeles on September 30. A second coach flight addition would extend TWA's Kansas City-Los Angeles service to San Francisco.

CPA Orders DC-6B's: Canadian Pacific Air Lines has ordered three Douglas DC-6B's for delivery late in 1952. The planes will probably be used on the trans-Pacific routes now flown by Canadair DC-4M's.

No Open Rate: Members of the International Air Transport Association have agreed by mail vote to a plan that will avert an "open rate" situation in the North Atlantic after September 30. Results of the vote, while

not yet disclosed, are expected to pave the way for a trans-Atlantic tourist service by next spring rather than in October 1952, as agreed upon recently at Bermuda. The rate crisis developed last month when, because of a tie-in clause, all new North Atlantic rate resolutions fell after CAB rejected IATA's proposed tourist program, largely because of its late starting date.

All Flights Resumed: Western Air Lines completed restoration of all flight schedules on August 19, thus achieving full reactivation of its service within eight days after the end of mechanics' strike.

Second Southern Interchange: Eastern Air Lines has urged immediate approval of a second southern transcontinental interchange involving it, Braniff and TWA. The operation was suggested by CAB recently when it reopened the Southern Service to the West Case for argument to be held September 17. Eastern requested interim approval pending full hearing, if necessary, pointing out that record travel brought about by defense activities made the service necessary. Service would be via Eastern between Miami and Houston, via Braniff between Houston and Amarillo, and via TWA between Amarillo and the west coast.

CONGRESS

USAF Expansion: Sen. Burnet R. Maybank (D., S. C.) introduced a bill to give the Air Force \$5 billion in additional funds for plane purchases. The House has already voted USAF \$19.7 billions. Sen. Joseph C. O'Mahoney, chairman of the Senate Military Spending Subcommittee, asked USAF to draft legislation permitting it to contract for planes beyond its authorized 35 wings, presumably for fiscal 1952.

Air Mail Hike: Senate Post Office Committee has approved an increase in cost of air mail letters from six to eight cents.



CIVIL AERONAUTICS BOARD

Three-Carrier Merger? Possibility of at least one other carrier joining the proposed Delta-Northeast merger was emphasized when CAB set the case down for prehearing conference but refused to consider a Delta plan for linking its routes with NEA's. Board's action, which could be first step in proposed realignment of the route structure, means that procedural steps will get underway in the merger case without any formal basis for integration of the two systems—unless another carrier joins the merger.

Havana-New York Route: CAB awarded a three-year foreign air carrier permit to Compania Cubana de Aviacion, S. A. for operations between Havana and New York. Cubana was one of three Cuban lines seeking the route and, according to CAB, had backing of Cuban Government. Other applicants were Aerolias "Q" and Expreso Aero Inter-Americano.

Actions

- **Air Transport Associates**, a large irregular carrier, turned down request for immediate hearing on applications for numerous certificated routes, including a transcontinental proposal. Board said that with "due diligence" carrier could have processed applications in recently-completed cases.
- **Los Angeles-Twin Cities** interchange proceeding instituted by Board with consideration to be given to following interchange possibilities: (1) Inland and United via Denver; (2) Mid-Continent and United via Omaha; and (3) Mid-Continent and TWA at Kansas City.
- **Trans World Airlines** authorized to suspend trans-Atlantic operations at Chicago and Detroit during the winter season, marking third straight year CAB has permitted "off-season" suspension at the points.
- **United Air Lines** turned down on request for exemption to serve Pasco and Walla Walla, Wash., as intermediates on Route No. 1 between Pendleton, Ore., and Seattle, Wash.

• **Pan American-Grace Airways** turned down on request for exemption to serve Bogota, Colombia, as an intermediate between Balboa and Calif. Panagra's request was for interim operating rights until CAB acts on application to include Bogota in the carrier's certificate. CAB said, however, that issues are too complex to be resolved short of public hearings.

• **Pan American, Panagra and National** turned down on petitions for stay of recent Miami exemption award to Braniff Airways. Board, which made a similar ruling on an earlier Panagra request, said its action is without prejudice to reconsideration petitions.

• **United Air Lines'** application for a Denver-Twin Cities route consolidated with Western Air Lines' request for a Salt Lake City-Rapid City extension and 20 parties granted intervention rights.

• **Braniff Airways and Capital Airlines** turned down on motions to expand scope of Houston-New York Interchange Case which involves joint application of TWA and Chicago and Southern. Braniff had requested consolidation with the case of its Tulsa-New York route application and Capital sought broadening of the issues to include consideration of a Capital C&S interchange between Houston and New York via Memphis.

• **Pan American World Airways'** request to suspend trans-Atlantic operations at Philadelphia pending decision in the Philadelphia/trans-Atlantic Case has been turned down. Pan Am sought the authority when a CAB examiner recommended such suspension in favor of a DC-3 shuttle between New York and Philadelphia via TWA. CAB ruled further action should await oral argument at which time Pan Am may renew its request.

• **Carco Air Service** was granted continued authorization to operate between Albuquerque, Santa Fe and Los Alamos, New Mexico through May 3, 1952.

Examiners Reports

- **Western Air Lines'** Route 13 will be extended from Yuma to Phoenix, Arizona, if CAB adopts recommendation of Examiner F. Merritt Ruhlen. In his report in the Reopened Additional California-Nevada Service Case, Ruhlen also recommended suspension of Frontier Airlines' Yuma-Phoenix route and Western's authority to operate between San Bernardino or Palm Springs, on one hand, and El Centro-Yuma, on the other. He suggested denial of Los Angeles-Phoenix applications of Southwest Airways and Bonanza Air Lines.
- **Delta Air Lines** recommended for more flexible routing of all-cargo flights by Examiner Barron Fredricks. Proposal would permit service to Jackson, Miss., and New Orleans on all-cargo flights over east-west Route 24 and to Greenville and Spartanburg, S. C., on north-south Route 54.
- **Continental Air Lines and Mid-Continent Airlines** joint application for interchange rights between Denver, Kansas City and St. Louis recommended for approval by Examiner J. Earl Cox.

Applications and Petitions

- **American Airlines** urged reconsideration of most-recent decision in Southern Service to West Case which suggested a second southern transcontinental interchange operation via Eastern, Braniff and TWA. Such an operation, AA charged, is "inconsistent with a sound program of interchanges" and would provide service for only 2% of one passenger a day in each direction. With Delta and National, American currently provides a transcontinental interchange service authorized by CAB in original decision.
- **Pan American World Airways** requested CAB to issue a cease and desist order prohibiting further acquisitions of National Airlines' stock by W. R. Grace & Co. At same time, Pan Am, Eastern and Braniff requested denial of motions of Grace and National for dismissal of the Grace-National control investigation. Dismissal was requested when Grace disposed of 174,000 shares of NAL stock it held since March, 1949.
- **Slick Airways and The Flying Tiger Line** applied for extension beyond September 1 of directional commodity air freights. Rates have been in effect since April, 1950 and range as low as 8c a ton-mile in some cases. They were designed to develop so-called "backhaul" loads.
- **Island Air Ferries**, New York area local service line, has applied for renewal of its certificate for duration of present national emergency. Certificated in February 1948, Island has not yet begun scheduled operations although it has engaged in non-scheduled activities. Its certificate, which does not provide for mail pay, expired August 18, 1951 but the filing for renewal permits continuation pending Board decision.

CAB Calendar

Aug. 27—Hearing in Swiss Air Transport Foreign Permit Amendment Case (Service to Frankfurt, Germany). Washington. (Docket 5004).

Aug. 29—Hearing in Caribbean American Lines Individual Exemption Case. Washington. (Docket 3901).

Sept. 6—Oral argument before the Board in Chicago and Southern Air Lines Service to Maracaibo, Venezuela, Case. Washington. (Docket 3153).

Sept. 10—Hearing in Capital Airlines Chicago-Milwaukee-Twin Cities All-Cargo Route Authorization Case. Washington. (Docket 4835).



FINANCIAL

Manufacturers

• **Sperry Corp.** netted \$5,213,574, or \$2.57 a share, on sales of \$107,601,253 for 1951's first half as against a net of \$4,263,374, or \$2.10 a share, on sales of \$76,135,917 for first six months of 1950. A 50c dividend will be paid September 24 to stockholders of record September 7.

• **United Aircraft Corp.** netted \$6,307,992, or \$1.77 a share, on sales of \$185,220,572 for six months ended June 30. First half, 1950, showed a net of \$6,432,136, or \$2.17 a share, on sales of \$132,709,601. Backlog is now \$1,185,000,000. A 50c quarterly dividend will be paid September 10.

• **Solar Aircraft Co.** netted \$248,300 on sales of \$10,452,500 for quarter ended July 31 as against a net of \$108,000 on sales of \$4,275,600 for same period 1950. A 20c dividend will be paid October 15 to stockholders of record September 29. Backlog is now \$78,000,000.

Airlines

• **Eastern Air Lines** netted \$3,735,335, or \$1.56 a share, on gross revenues of \$51,874,000 for first six months of 1951. This compares with a net of \$2,459,584, or \$1.03 a share, on gross revenues of \$40,822,000 for same period last year.

• **Seaboard & Western Airlines** will pay a 30c dividend September 25 to stockholders of record September 14.

• **Slick Airways** hopes to raise at least \$500,000 for new equipment by the sale of 147,301 shares of \$10 par common stock.

• **Mid-Continent Airlines** netted \$85,176 or 20c a share for 1951's first half as against \$154,284, or 37c a share for same period last year.



MILITARY

Obsolete Engines: USAF has 267 obsolete engines, including 27 scarce Pratt & Whitney B-2800's. Other Government agencies have first call on these surplus power plants, but none were taken over by them during the last fiscal year and the engines consequently are available for purchase by commercial operators.

Spartan Training: Spartan School of Aeronautics has received an Army contract to train artillery observer pilots in instrument flying. The course was formerly given by the Army at Fort Sill, Okla.

No More Flight Schools: USAF plans no extension of contract flight training unless either the world situation changes or the Air Force is expanded greatly. Nine schools have been awarded basic flight training contracts.

Joint Airport Use: Air Force has accepted the suggestion that commercial users be allowed to continue operation at Hamner Field, Fresno Cal., after AF takes over the facility. There was some concern that the military would insist on exclusive use, after request for \$22,300,000 for construction of additional runways and other facilities at the field was submitted to Congress by the AF.



LABOR

Higher Wages Disallowed: Wage Stabilization Board has notified Avco Manufacturing Corp. that proposed wage and salary schedule submitted for company's new Bridgeport-Lycoming Division aircraft engine plant at Stratford, Conn. cannot be approved, and that a new rate schedule must be submitted. The division, which

expects to employ about 10,000 workers when full production is reached, had hired about 800 when complaint reached Washington that it was hiring workers at rates above those permissible under WSB regulations.

AVRO Grants Increase: Avro Canada and Aeronautical Lodge 717, International Association of Machinists, have signed a new agreement covering hourly employees at company's Malton and Nobel, Ontario plants. Agreement provides reduction of work week from 45 to 42½ hours and wage increase of 10 cents an hour. Some 4,000 employees are affected.

Vote Against Union: Fletcher Aviation Corp., Pasadena, Cal. reports that its workers voted 125 to 91 against union representation in an NLRB election. During World War II the International Association of Machinists union was bargaining agent but after the war the plant was closed ending the contract. In the election, IAM received 47 votes, the United Steel Workers-CIO 44.

Airline Wage Cases: Several airline wage cases are not being acted on because the Wage Stabilization Board's Appeals and Review Committee, which was set up to handle them, claims it is powerless. The new Defense Production Act ordered a special panel to handle wage cases of firms coming under the jurisdiction of the Railway Labor Act, but Economic Stabilizer Eric Johnston has not yet named the panel's members.



CIVIL AVIATION

Webster Heads NAA: Donald Webster, aviation insurance man and president of the Aero Club of Washington, D. C., was elected president of the National Aeronautic Association at annual meeting in Detroit, August 17. Webster was delegated by the convention to appoint a committee to work with representatives of the National Air Council to determine whether a merger or some close working relationship can be arranged.

Civil Defense Panel: A 13-member Aviation Advisory Panel has been named by the Federal Civil Defense Administration to work out conflicts in civil defense problems. The same groups which are represented on the Emergency Aviation Council will comprise the new panel.

War Plan for Civil Flying: CAA has clarified its plan for controlling civil flight activities in periods of declared war by stating that point-to-point flying without radio equipment will be permitted, except in Air Defense Identification Zones. Planes entering, leaving, or flying over 4,000 feet within ADIZ during a declared war must be equipped with two-way radio, file flight plan and report their positions, unless flying within visual re-call distance of airport.



COMING UP

Sept. 10—Hearing resumed in Piedmont Aviation Certificate Renewal Case. Washington. (Docket 4762 et al.)

Sept. 10-14—Instrument Soc. of America 6th Nat'l Instrument Conf. and Exhibit, Sam Houston Coliseum, Houston.

Sept. 18-20—Air Transport Association, Meteorology Committee, Greystone Lodge, Denver, Colo.

Sept. 23—Dedication of Administration Building, Des Moines Airport, Iowa.

Sept. 25-28—CAA Airport Advisory Committee, Special Airport Design Meeting, Washington, D. C.

Sept. 26-28—American Society of Mechanical Engineers, Fall Meeting, Radisson Hotel, Minneapolis, Minn.

Oct. 1—Western Chapter, Air Mail Pioneers, Newhouse Hotel, Salt Lake City.

International

Sept. 3-14—Third Int'l Conference, convened jointly by Royal Aero Society and Inst. of the Aero. Sciences of America, Brighton, Sussex, England.

Sept. 4—ICAO, SAR, 3rd session, Montreal.

Sept. 10-16—IATA 7th Annual General Meeting, London.